8 Modes

This chapter describes the six different Modes through which you can work in the Graphics Window. The "active" Mode determines both the configuration and what functions are available through the Mode Icon Bar.

Figure 8-1
Mode Choices

Section 8.1, Part Mode describes the layout of the Mode Icon Bar and the functions available when **Part** is the active Mode.

Section 8.2, Annot Mode describes the layout of the Mode Icon Bar and the functions available when **Annot** is the active Mode.

Section 8.3, Plot Mode describes the layout of the Mode Icon Bar and the functions available when **Plot** is the active Mode.

Section 8.4, VPort Mode describes the layout of the Mode Icon Bar and the functions available when **VPort** is the active Mode.

Section 8.5, Frame Mode describes the layout of the Mode Icon Bar and the functions available when **Frame** is the active Mode. *By default, this mode is not available unless it has been enabled under Edit > Preferences... General User Interface - Frame Mode Allowed*

Section 8.6, View Mode describes the layout of the Mode Icon Bar and the functions available when **View** is the active Mode. *By default, this mode is not available unless it has been enabled under Edit > Preferences... General User Interface - View Mode Allowed.*

8.1 Part Mode

Part Mode is used to adjust a number of attributes for individual Parts and to specify the desired type of Pick operation.
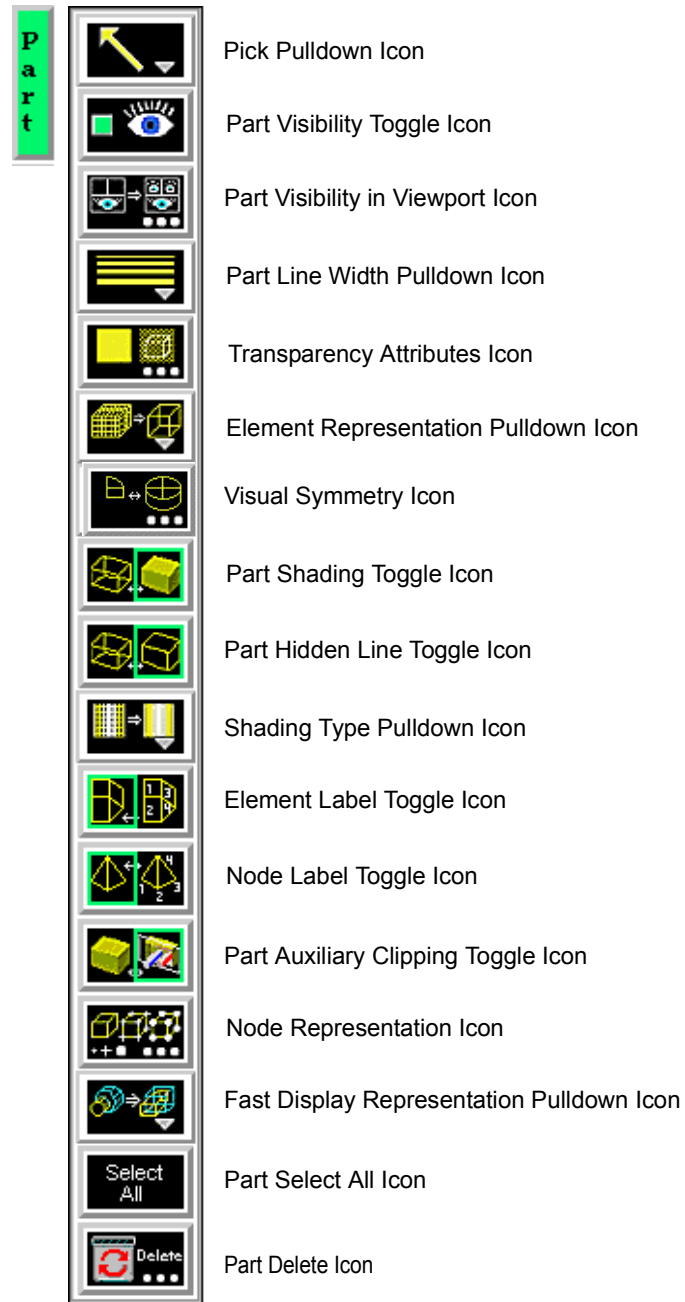
Pick Pulldown Icon	
Part Visibility Toggle Icon	
Part Visibility in Viewport Icon	
Part Line Width Pulldown Icon	
Transparency Attributes Icon	
Element Representation Pulldown Icon	
Visual Symmetry Icon	
Part Shading Toggle Icon	
Part Hidden Line Toggle Icon	
Shading Type Pulldown Icon	
Element Label Toggle Icon	
Node Label Toggle Icon	
Part Auxiliary Clipping Toggle Icon	
Node Representation Icon	
Fast Display Representation Pulldown Icon	
Part Select All Icon	
Part Delete Icon	

Figure 8-2
Mode Selection Area - Part Selected

For a complete discussion about Parts:

(see Chapter 3, Parts)

Pick Pull-down Icon   Opens a pull-down menu for the specification of the desired type of Pick operation. The actual Pick operation is normally assigned to the "P" key on the keyboard, unless it has been reassigned under Main Menu: Edit > Preferences... Mouse and Keyboard...
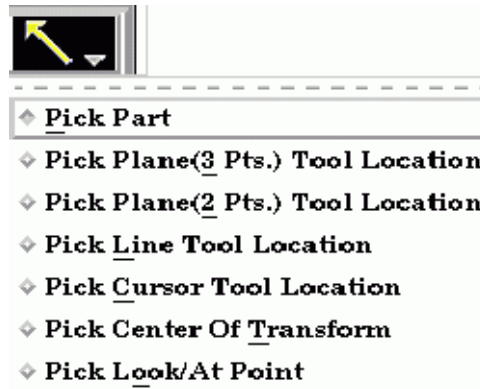
Figure 8-3
Part Mode - Pick Pulldown Icon

Pick Part   When the Pick operation is performed (by default, pressing the "P" key), the Part directly under the mouse cursor is selected. To select multiple Parts, hold down the Control Key during the Pick operation. It is usually helpful to open and use the Selected Parts Window while Picking Parts. This is done from Main Menu: View > Show Selected Part(s)...

Pick Plane (3 Pts) Tool Location   When the Pick operation is performed (by default, pressing the "P" key), the Plane Tool will be positioned at the Picked points. Three points must be Picked to position the Plane Tool.

Pick Plane (2 Pts) Tool Location   When the Pick operation is performed (by default, pressing the "P" key), the view in the graphics window will change to an orthographic view. At this point, you can click and drag the mouse to define a line. The Plane Tool will be positioned parallel to your current viewing angle through the defined line. Consider using this option together with the F5, F6, F7, and F8 keys which will transform the view to a standard orientation.

(see Section 9.1, Global Transform)

Pick Line Tool Location   When the Pick operation is performed (by default, pressing the "P" key), the ends of the Line Tool will be centered on a plane defined by the Picked points. Two points must be Picked to position the Line Tool.

Pick Center of Transformation   When the Pick operation is performed (by default, pressing the "P" key), the center of global transformation is positioned at the Picked point.

Pick Cursor Tool Location   When the Pick operation is performed (by default, pressing the "P" key), the Cursor Tool will be positioned at the Picked point.

Pick Look At Point   When the Pick operation is performed (by default, pressing the "P" key), the Look At Point is positioned at the Picked point. The Look From Point is also adjusted to preserve the distance (between the two Points) and vector that existed prior to the Pick operation.

(see Section 9.7, Look At/Look From)

Access: Part Mode : Pick Pull-down Icon

Part Visibility   Determines the global (in all viewports and in all Modes) visibility of the selected

Toggle Icon   Part(s).

Figure 8-4
Part Mode - Part Visibility Toggle Icon

Access: Part Mode : Part Visibility Toggle Icon

Part Visibility in   Opens the "Part Visible in Which Viewport?" dialog. If the global visibility of a Part is on,
Viewport Icon   this dialog can be used to selectively turn on/off visibility of the selected Part(s) in
                       different viewports simply by clicking on a viewport's border symbol within the dialog's
                       small window. The selected Part(s) will be visible in the viewports outlined in green and
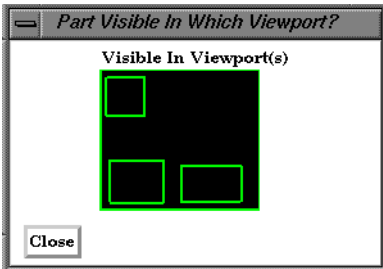   invisible in those outlined in red.

Figure 8-5
Part Mode - Part Visibility in Viewport Icon
and Part Visible in Which Viewport ? dialog

Access: Part Mode : Part Visibility in Viewport Icon

Part Line Width   Opens a pulldown menu for the specification of the desired display width for Part lines.
Pulldown Icon   Performs the same function as the Line Representation Width field in the Node, Element,
                       and Line Attributes section of the Feature Detail Editor (Model).

Figure 8-6
Part Mode - Part Line Width Pulldown Icon

Access: Part Mode : Part Line Width Pull-down Icon

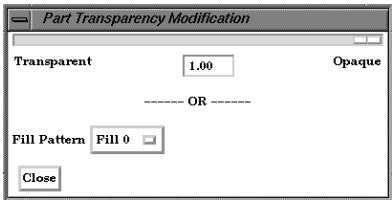*Transparency Attributes Icon*   Opens the Part Transparency Modification dialog.

Figure 8-7
Part Mode - Transparency Attributes Icon and Part Transparency Modification dialog

The degree of Opaqueness for the selected Parts when Hidden Surface is on for the Part(s)
may be adjusted by typing in a value from 0.0 to 1.0 in the field or by using the slider bar.
A value of 0.0 will render the selected Part(s) completely transparent whereas the default
value of 1.0 renders them completely opaque. This field performs the same function as the
Opaqueness field in the General Attributes section of the Feature Detail Editor (Model).

Fill Pattern   Opens a pull-down menu to specify that a fill pattern be used to provide pseudo-

transparency for Hidden Surface shaded Part surfaces. The Default is Fill 0 which uses no pattern (produces a solid surface), while Fill patterns 1 through 3 produce an EnSight defined fill pattern. Performs the same function as the Fill Pattern pulldown menu in the General Attributes section of the Feature Detail Editor (Model). Fill Pattern and Transparency should not be used together.

Access: Part Mode : Transparency Attributes Icon

Element Visual Representation Pulldown Icon

Opens a dialog for the specification of the desired representation for elements of the selected Part(s). Performs the same function as the Element Representation Visual Rep. pulldown menu in the Node, Element, and Line Attributes section of the Feature Detail Editor (Model).
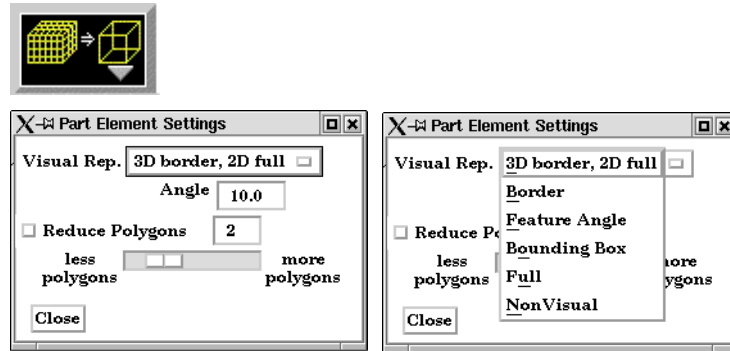

Figure 8-8
Part Mode - Element Representation Icon

(see Element Representation in Section 3.3, Part Editing)

Access: Part Mode : Element Representation Pull-down Icon

Visual Symmetry Icon

Opens the Part Visual Symmetry dialog which allows you to control the display of mirror images of the selected Part(s) in each of the seven other quadrants of the Part's local frame or the rotationally symmetric instances of the selected parts. This performs the same function as the Visual Symmetry menu in the General Attributes section of the Feature Detail Editor (Model).
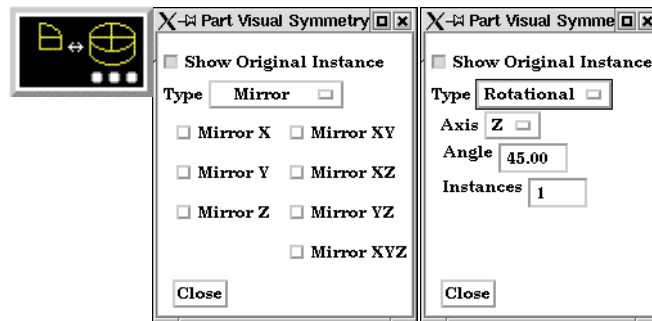

Figure 8-9

Part Mode - Visual Symmetry Icon

Symmetry enables you to reduce the size of your analysis problem while still visualizing the "whole thing." Symmetry affects only the displayed image, not the data, so you cannot query the image or use the image as a parent Part.   However, you can create the same effect by creating dependent Parts with the same symmetry attributes as the parent Part.

You can mirror the Part to more than one quadrant. If the Part occupies more than one quadrant, each portion of the Part mirrors independently. Symmetry works as if the local frame is Rectangular, even if it is cylindrical or spherical. The images are displayed with the same attributes as the Part. For each toggle, the Part is displayed as follows. The default for all toggle buttons is OFF, except for the original representation - which is ON.

Mirror X   quadrant on the other side of the YZ plane.

Mirror Y	quadrant on the other side of the XZ plane.
Mirror Z	quadrant on the other side of the XY plane.
Mirror XY	diagonally opposite quadrant on the same side of the XY plane.
Mirror XZ	diagonally opposite quadrant on the same side of the XZ plane.
Mirror YZ	diagonally opposite quadrant on the same side of the YZ plane.
Mirror XYZ	quadrant diagonally opposite through the origin.
Show Original Instance	the original part instance

Rotational visual symmetry allows for the display of a complete (or portion of a) "pie" from one "slice" or instance. You control this option with:

Axis	X	rotates about the X axis
	Y	rotates about the Y axis
	Z	rotates about the Z axis
Angle		specifies the angle (in degrees) to rotate each instance from the previous
Instances		specifies the number of rotational instances.
Show Original Instance		show the original instance or not

Access: Part Mode : Visual Symmetry Icon

Part Shaded Toggle Icon

Toggles on/off Shaded display of surfaces for the selected Part(s) assuming that Global Shaded has been toggled ON in the Main Menu > View > Shaded. Performs the same function as the Shaded Toggle in the General Attributes section of the Feature Detail Editor (Model). Default for all Parts is ON.
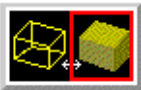

Figure 8-10
Part Mode - Part Shaded Toggle Icon

Access: Part Mode : Part Shaded Toggle Icon

Part Hidden Line Toggle Icon

Toggles on/off hidden line display of surfaces for the selected Part(s) assuming that the Global Hidden Line has been toggled ON in the Main Menu > View > Hidden Line. Performs the same function as the Hidden Line Toggle in the General Attributes section of the Feature Detail Editor (Model). Default for all Parts is ON.

Figure 8-11
Part Mode - Part Hidden Line Toggle Icon

Access: Part Mode : Part Hidden Line Toggle Icon

Shading Type Pull-down Icon

Opens a pull-down menu for the selection of appearance of the surface of the selected Part(s) when Hidden Surface is ON.
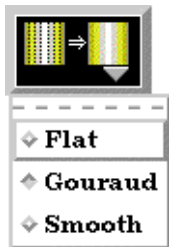

Figure 8-12
Part Mode - Shading Type Pulldown Icon

Normally the mode is set to Gouraud, meaning that the color and shading will interpolate across the polygon in a linear scheme. You can also set the shading type to Flat, meaning

that each polygon will get one color and shade, or Smooth which means that the surface normals will be averaged to the neighboring elements producing a "smooth" surface appearance. Not valid for all Part types. Options are:

Flat   Color and shading same for entire element
Gouraud   Color and shading varies linearly across element
Smooth   Normals averaged with neighboring elements to simulate smooth surfaces

Access: Part Mode : Shading Pull-down Icon

Element Label Toggle Icon

Toggles on/off the visibility of the element labels (assuming the result file contains them) for the selected Part(s). The Global Element Label Toggle (View Mode) must be on in order to see any element labels. Performs the same function as the Label Visibility Element toggle in the Node, Element, and Line Attributes section of the Feature Detail Editor (Model). Default is OFF.

Figure 8-13
Part Mode - Element Label Toggle Icon

Access: Part Mode : Element Label Toggle Icon

Node Label Toggle Icon

Toggles on/off the visibility of the node labels (assuming the result file contains them) for the selected Part(s). The Global Node Label Toggle (View Mode) must be on in order to see any element labels. Performs the same function as the Label Visibility Node toggle in the Node, Element, and Line Attributes section of the Feature Detail Editor (Model). Default is OFF.

Figure 8-14
Part Mode - Node Label Toggle Icon

Access: Part Mode : Node Label Toggle Icon

Part Auxiliary Clipping Toggle Icon

Toggles on/off whether the selected Part(s) will be affected by the Auxiliary Clipping Plane feature. Performs the same function as the Aux Clip toggle in the General Attributes section of the Feature Detail Editor (Model). Default is ON.
Note: The Global Auxiliary Clipping Toggle (in the View Mode Icon Bar) must be on in order for any Parts to be affected by the Aux Clip Plane.
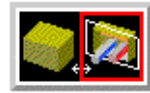

Figure 8-15
Part Mode - Part Auxiliary Clipping Toggle Icon

Access: Part Mode : Part Auxiliary Clipping Toggle Icon

Node Representation Icon

Opens the Part Node Representation dialog. Performs the same function as the Node Representation area in the Node, Element, and Line Attributes section of the Feature
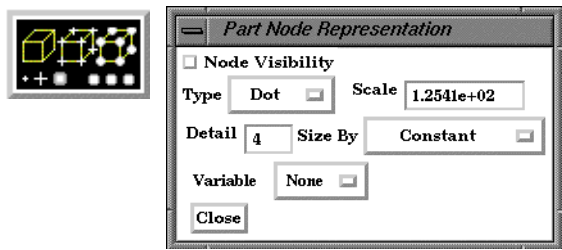
Detail Editor (Model).

Figure 8-16
Part Mode - Node Representation Icon and Part Node Representation dialog

Node Visibility Toggle Toggles-on/off display of Part's nodes whenever the Part is visible. Default is OFF.

Type	Opens a pop-up menu for the selection of symbol to use when displaying the Part's nodes. Default is Dot. Options are: *Dot* to display nodes as one-pixel dots. *Cross* to display nodes as three-dimensional crosses whose size you specify. *Sphere* to display the nodes as spheres whose size and detail you specify.
Scale	This field is used to specify scaling factor for size of node symbol. If Size By is Constant, this field will specify the size of the marker in model coordinates. If Size By is set to a variable, this field will be multiplied by the variable value. Not applicable when node-symbol Type is Dot.
Detail	This field is used to specify how round to draw the spheres when the node-symbol type is Sphere. Ranges from 2 to 10, with 10 being the most detailed (e.g., roundest spheres). Higher values take longer to draw, slowing performance. Default is 2.
Size By	Opens a pop-up menu for the selection of variable-type to use to size each node-symbol. For options other than Constant, the node-symbol size will vary depending on the value of the selected variable at the node. Not applicable when node-symbol Type is Dot. Default is Constant. Options are: *Constant* sizes node using the Scale factor value. *Scalar* sizes node using a scalar variable. *Vector Mag* sizes node using magnitude of a vector variable. *Vector X-Comp* sizes node using magnitude of X-component of a vector variable. *Vector Y-Comp* sizes node using magnitude of Y-component of a vector variable. *Vector Z-Comp* sizes node using magnitude of Z-component of a vector variable.
Variable	Selection of variable to use to size the nodes. Activated variables of the appropriate Size By type are listed. Not applicable when node-symbol Type is Dot or Size By is Constant.

Access: Part Mode : Node Representation Icon

Fast Display Toggle Icon　　Opens a pull-down menu for the specification of the desired fast display representation in which a Part is displayed. The Part fast display representation corresponds to whether the view Fast Display Mode (located in the View Menu or as a View Mode icon) is on. The Fast Display pull-down icon performs the same function as the Fast Display pop-up menu button in the General Attributes section of the Feature Detail Editor (of all parts).

Figure 8-17
Part Mode -   Detail Representation Pulldown Icon

Box　　causes selected Part(s) to be represented by a bounding box of the Cartesian extent of all Part elements (default).

Points　　causes selected Part(s) to be represented by a point cloud

(see General Attributes in Section 3.3, Part Editing, How To Set Global Viewing))

Access:　Part Mode : Detail Representation Pull-down Icon

Select All　　Selects all parts.

Figure 8-18
Part Mode - Select All Icon

Delete　　Deletes the selected parts.

Figure 8-19
Part Mode - Delete Icon

8.2   Annot Mode

Annot (Annotation) Mode is used to create and edit text strings, lines, and import logos into the Graphics Window., and to adjust their visibility, size, color. and position. It is also used to adjust the type, size, format, and position of legends.

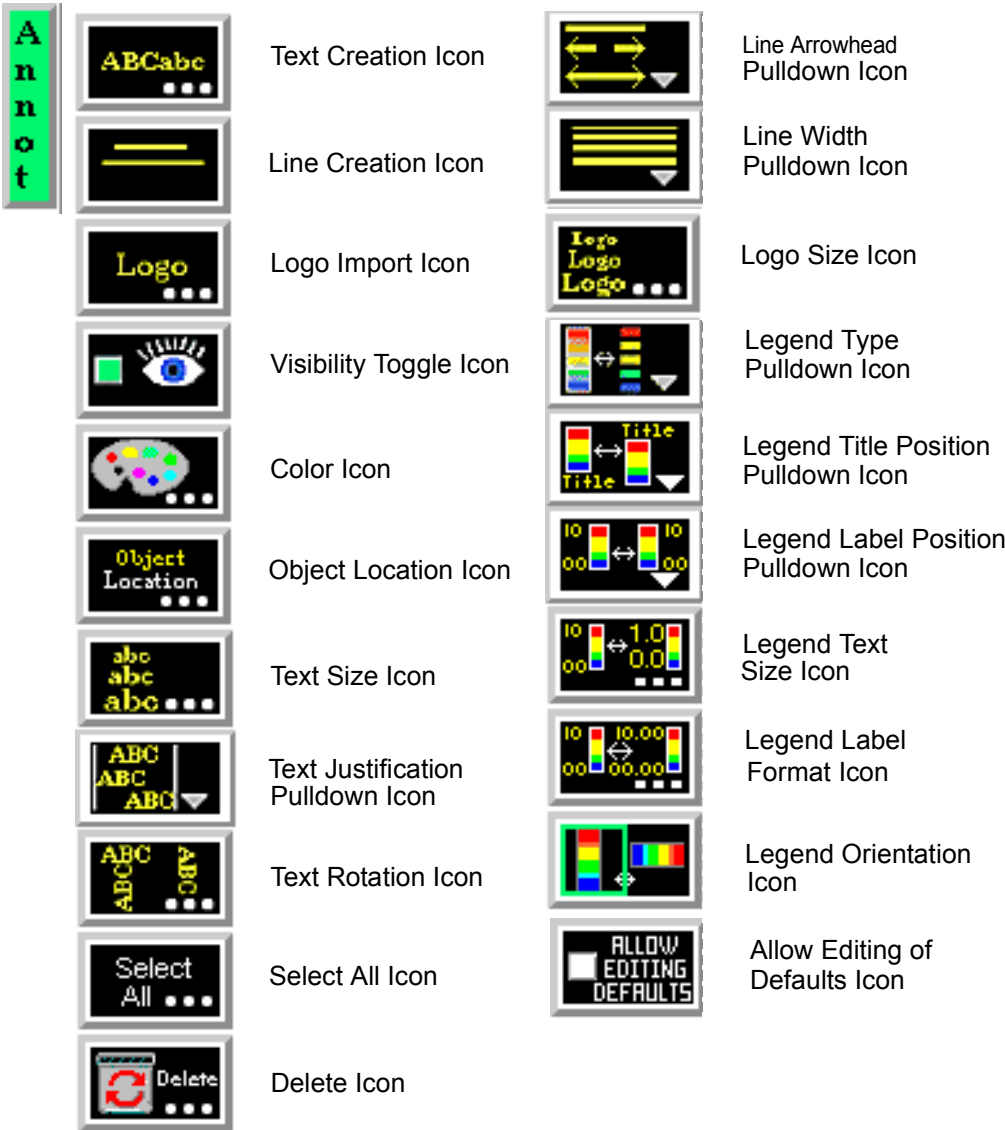|		
ABCabc	Text Creation Icon	Line Arrowhead Pulldown Icon
	Line Creation Icon	Line Width Pulldown Icon
Logo	Logo Import Icon	Logo Size Icon
	Visibility Toggle Icon	Legend Type Pulldown Icon
	Color Icon	Legend Title Position Pulldown Icon
Object Location	Object Location Icon	Legend Label Position Pulldown Icon
abc abc abc	Text Size Icon	Legend Text Size Icon
ABC ABC ABC	Text Justification Pulldown Icon	Legend Label Format Icon
ABC ABC	Text Rotation Icon	Legend Orientation Icon
Select All	Select All Icon	Allow Editing of Defaults Icon
Delete	Delete Icon	

Figure 8-20
Mode Selection Area - Annot Selected

When in Annot Mode, you are always modifying the objects selected in the Graphics Window. Selected Annotation objects are outlined in the "selection color", while unselected objects are outlined in a white color. To select an object, click the mouse over it. To select multiple objects, hold the Control key down while clicking on the objects.

All annotation objects are positioned in the main Graphics Window; they are not tied to specific viewports.

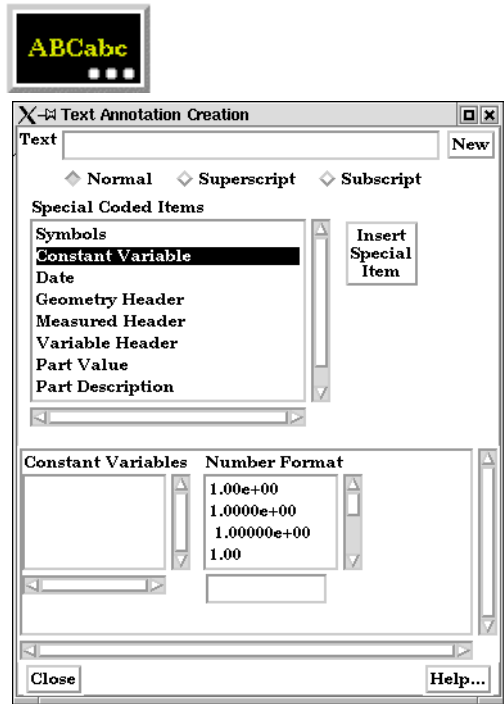*Text Creation Icon*   Opens the Text Annotation Creation dialog.

Figure 8-21
Annot Mode - Text Creation Icon and Text Annotation Creation dialog

Text strings may be created and inserted into the Graphics Window using the Text Annotation Creation dialog.

Text   This field specifies the desired text string.

Normal, Superscript   Toggle one of these and subsequent text in the text field will be displayed as normal,
Subscript   super or sub script.

New   Clicking this button inserts the text in the Text field into the Graphics Window.

Special Coded   Menu of eight different special strings used to insert information contained in results data
Items   set or within EnSight into text string.

Insert Special Item   Inserts selected Special String into Text field at position of cursor. Choices are:
                         Constant Variable inserts the value of the constant variable selected and displays it in the
                                 selected format
                         Date inserts the Day of Week, Month, Date, Time, Year
                         Geometry Header inserts either the first or second header lines of the geometry file
                         Measured Header inserts the header line of the measured results file
                         Variable Header inserts the header line of the selected variable data file
                         Part Value   inserts the value used to create the Isosurface or Clip Plane Part. Only works
                                 for Isosurface Parts, or XYZ, IJK, or RTZ Clip Plane Parts)
                         Part Description inserts the description of the Part selected in a Parts List which pops up
                                 within the Text Annotation Creation dialog
                         Version inserts the EnSight version number, not including the (letter).
                                 For example, 7.6.1 (a) would be 7.6.1

                                 Access: Annot Mode : Text Creation Icon

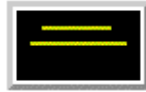*Line Creation Icon*   Creates a new line in the Graphics Window.

Figure 8-22
Annot Mode - Line Creation Icon

This line may be interactively repositioned and its length adjusted within the Graphics Window using the mouse cursor or these actions may be precisely done using the Object Location Icon.

Access: Annot Mode : Line Creation Icon

Logo Import Icon   Clicking the Logo Import Icon opens the File Selection dialog for the specification of the file name containing the desired logo. Files must be in xpm format (and cannot use color names -colors must be hex numbers).

Figure 8-23
Annot Mode - Logo Import Icon

Access: Annot Mode : Logo Import Icon

Visibility Toggle   Toggles on/off the visibility of selected text strings, lines, logos, and legends.

Figure 8-24
Annot Mode - Visibility Toggle Icon

This toggle affects only the individual text, line, or logo Annotation object(s) that is(are) currently selected in the Graphics Window. Toggling visibility off for an object will cause it to be "grayed-out" while in Annot Mode. These "grayed-out" objects will not be visible in the Graphics Window in any of the other five Modes.

Be aware that selecting a legend in the Graphics Window and then clicking the Annot Mode : Visibility Toggle will cause it to disappear (instead of become "grayed-out") and that clicking the Toggle again will NOT cause it to reappear. To make a legend visible once again in the Graphics Window you must select the desired variable in the Main Variables List and then click the Show Legend button just below the List.

Access: Annot Mode : Visibility Toggle

Color Icon   Opens the Color Selector dialog for the specification of the color you wish to assign to the selected text strings, lines, logos, or legends (text and color bar border).

Figure 8-25
Annot Mode - Color Icon

Access: Annot Mode : Color Icon

(see Section 7.1, Color)

Location Attributes Icon	Opens the Annotation Item Location dialog for the specification (in X and Y coordinates) of the desired location of the text justification point for selected Annotation objects.

Figure 8-26
Annot Mode - Location Attributes Icon

This method of positioning an Annotation object in the Graphics Window is an alternative to interactively positioning it with the mouse cursor and can be more precise.

Access: Annot Mode : Location Attributes Icon

Text Justification Pulldown Icon	Opens a pull-down menu for the selection of the desired justification of the selected text string(s). This icon will only be visible in the Annot Mode Icon Bar if a Text String has been selected.

Figure 8-27
Annot Mode - Text Justification Icon and resulting pull-down menu

Access: Annot Mode : Text Justification Icon

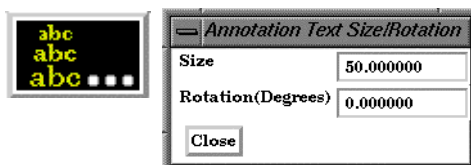|	
Text Size Icon	Opens the Annotation Text Size/Rotation dialog for the specification of desired size of selected text string(s) in the Graphics Window. Values specified should range from 1 to 100. This icon will only be visible in the Annot Mode Icon Bar if a Text String has been selected.

Figure 8-28
Annot Mode - Text Size Icon and Annotation Text Size/Rotation dialog

Access: Annot Mode : Text Size Icon

Text Rotation Icon	Opens the Annotation Text Size/Rotation dialog (above) for the specification of desired orientation of selected text string(s) in the Graphics Window. This icon will only be visible in the Annot Mode Icon Bar if a Text String has been selected. The rotation is specified in degrees and is applied in the counter clockwise direction about the justification point.

Figure 8-29
Annot Mode - Text Rotation Icon

Access: Annot Mode : Text Rotation Icon

Line Arrowhead
Pulldown Icon

Opens a pulldown menu for the placement of arrows on selected line objects.
This icon will only be visible in the Annot Mode Icon Bar if a line has been selected.
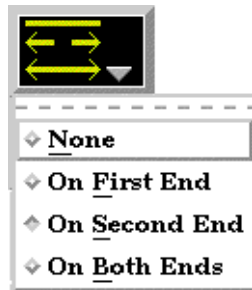

Figure 8-30
Annot Mode - Line Arrowhead Pulldown Icon

Access: Annot Mode : Line Arrowhead Pull-down Icon

Line Width
Pulldown Icon

Opens a pulldown menu for the specification of the desired width of the selected line objects. This icon will only be visible in the Annot Mode Icon Bar if a line has been selected.

Figure 8-31
Annot Mode - Line Width Pulldown Icon

Access: Annot Mode : Line Width Pull-down Icon

Logo Size Icon

Opens the Annotation Logo Scaling dialog for the specification of the desired scaling of selected logos. This icon will only be visible in the Annot Mode Icon Bar if a logo has been selected. A scale factor of 1.0 keeps the logo in its original defined size, while values less than 1.0 make it smaller and greater than 1.0 make it larger.
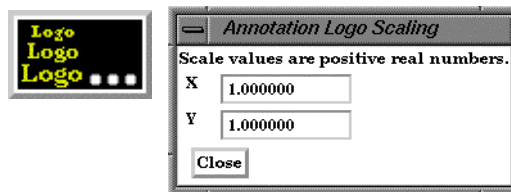

Figure 8-32
Annot Mode - Logo Size Icon and Annotation Logo Scaling dialog

Access: Annot Mode : Logo Size Icon

Legend Type
Pulldown Icon
Opens a pull-down menu for the specification of the desired display type for selected legends. Continuous will display a color interpolated bar, Discrete will display only colors at specific levels. This icon will only be visible in the Annot Mode Icon Bar if a legend has been selected.

Figure 8-33
Annot Mode - Legend Type Pulldown Icon

Access: Annot Mode : Legend Type Pull-down Icon

Legend Title Position
Pulldown Icon
Opens a pull-down menu for the specification of the desired visibility and placement of the title for selected legends. This icon will only be visible in the Annot Mode Icon Bar if a legend has been selected.

Figure 8-34
Annot Mode - Legend Title Position Pulldown Icon

Access: Annot Mode : Legend Title Pull-down Icon

Legend Label Position
Pulldown Icon
Opens a pull-down menu for the specification of the desired visibility and placement of value labels for selected legends.This icon will only be visible in the Annot Mode Icon Bar if a legend has been selected.

Figure 8-35
Annot Mode - Legend Label Position Pulldown Icon

Access: Annot Mode : Legend Label Pull-down Icon

Legend Text Size Icon Opens the Text Size Prompt dialog for the specification of the desired font size for the text of selected legends. Values specified should range from 1 to 100. This icon will only be visible in the Annot Mode Icon Bar if a legend has been selected.
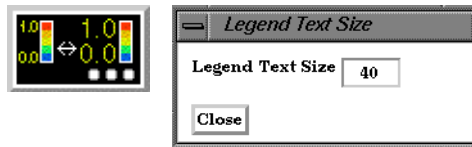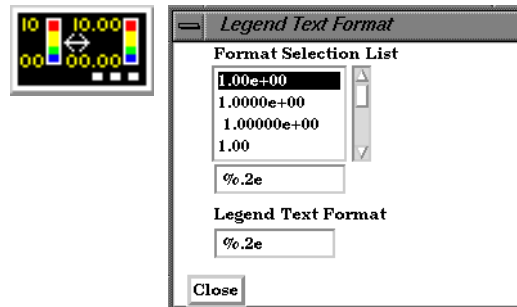

Figure 8-36
Annot Mode - Legend Text Size Icon and dialog

Access: Annot Mode : Legend Text Size Icon

Legend Text Format Icon Opens the Text Size Prompt dialog for the specification of the desired font size for the text of selected legends. Values specified should range from 1 to 100. This icon will only be visible in the Annot Mode Icon Bar if a legend has been selected.

Figure 8-37
Annot Mode - Legend Label Format Icon and dialog

Any legal C language *printf* format string for floating point numbers is permitted. The Selection List shows how the value of 1.0 will appear using the selected format. (*Note, if you desire only the integer portion of the number, use something like: %4.0f*)

Access: Annot Mode : Legend Label Format Icon

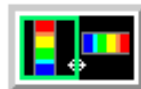*Legend Orientation Icon* Toggles between a vertical legend and a horizontal legend.

Figure 8-38
Annot Mode - Legend Orientation Icon

Select All...   Brings up the Annotation Selection Options Dialog which allows selection of the various annotation types.
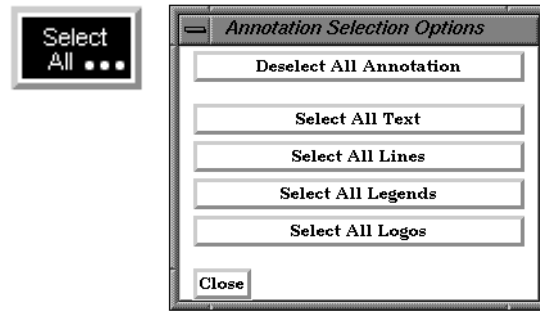
Figure 8-39
Annot Mode - Select All... Icon and Annotation Selection Options Dialog

Delete Icon   Deletes selected text, line or logo Annotation object(s).

Figure 8-40
Annot Mode - Delete Icon

You cannot delete legends using the Delete Icon. Once a legend for a specific variable has been made visible using the Show Legend button, it can be made non-visible using either the Annot: Visibility Toggle or the Annot: Global Legend Visibility Toggle Icon.

Access: Annot Mode : Delete Icon

Allow Editing   If on, all annotation icons are shown, so defaults can be edited without having to have an
Defaults   object selected. Otherwise, only those icons which are applicable to the current selection are displayed.

Figure 8-41
Annot Mode - Allow Editing Defaults

Legend...   Clicking the Legend... button (located on the Desktop above the graphics window) will allow the user to control which legends are visible.

8.3 Plot Mode

Plot Mode is used to adjust the attributes of 2D plotters and curves that you have created. Most often, you will create plotters using the Query/Plot Editor in the Quick Interaction Area, but you can create a new "empty" plotter using the Create New Plotter Icon and then assign a title and data to its axes using the Query/Plot Editor in the Quick Interaction Area

In Plot Mode, there are two things you can select.

1. You can click the plot window and the whole plot window will have a highlighted box indicating its selection (green in color by default).

2. You can click on an individual curve to cause the curve line to thicken - indicating selection..

Plotter Visibility Toggle Icon   -   (select plot window)

Plotter Attributes Icon   -   (select plot window)

Axis Attributes Icon   -   (select plot window)

Curve Attributes Icon   -   (select plot window and curve)
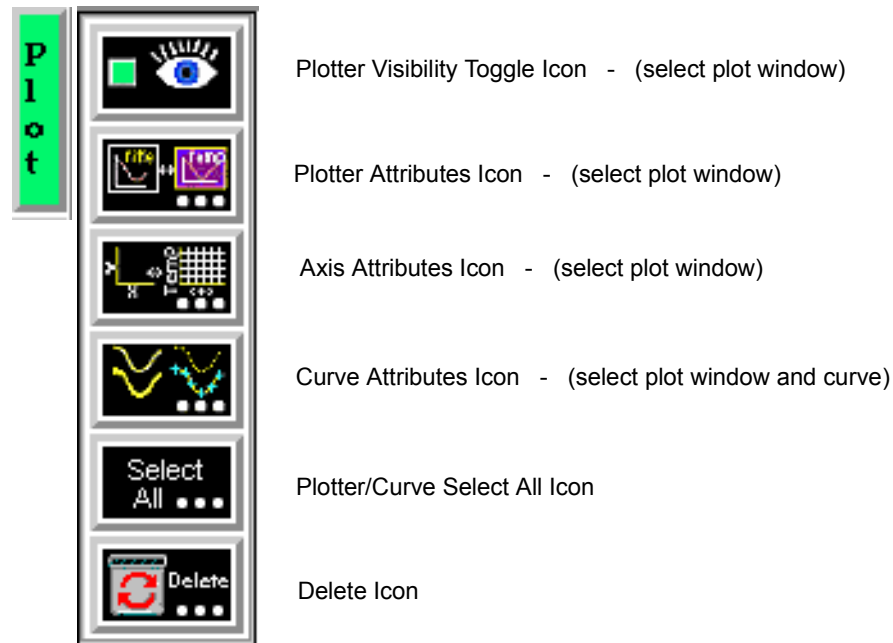
Plotter/Curve Select All Icon

Delete Icon

Figure 8-42
Mode Selection Area - Plot Selected

The plotting capability is limited to simple x versus y data. Most often this data is in the form variable value versus Time or Distance.

Plotter Visibility Toggle Icon	Determines the visibility of the selected plotters. The selected plotters for which visibility has been toggled off will appear grayed-out in Plot Mode.

Figure 8-43
Plot Mode - Plotter Visibility Toggle Icon

Access: Plot Mode : Plotter Visibility Toggle Icon

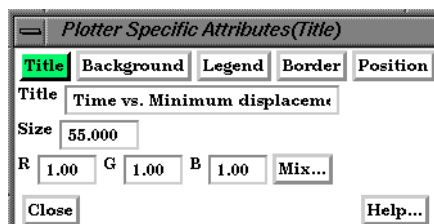|	
Plotter Attributes Icon	Opens the Plotter Specific Attributes dialog for the specification of attributes for Title, background, legend, border and position of the selected plotters.
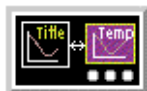
Figure 8-44
Plot Mode -   Plotter Attributes Icon and Plotter Specific Attributes dialog

|		
Title		Clicking the Title button causes the dialog to configure itself for Plotter Title editing.

Title	This field allows you to edit the existing plotter title.
Size	This field allows you to specify the title text size.
RGB Mix...	Color for the Title text may be specified using either the RBG fields or the Color Selector dialog which is opened by clicking the Mix... button.
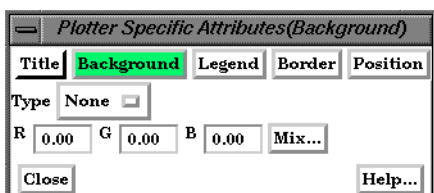
|		
Background		Clicking the Background Button causes the dialog to configure itself for Plotter Background editing.

|	
Type	Opens a pop-up menu for the specification of plotter background color. Choices are: *None* no background (the color of the Graphics Window or the viewport underneath will show through the Plotter) *Solid* allows a solid color to be specified for the Plotter Background
RGB Mix...	Color for the Plotter background may be specified using either the RBG fields or the Color Selector dialog which is opened by clicking the Mix... button.

Legend
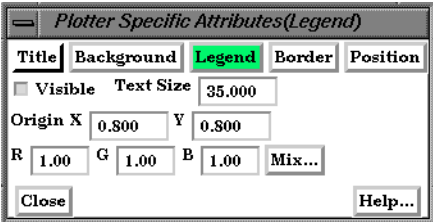
Clicking the Legend Button causes the dialog to configure itself for Plotter Legend editing. The legend shows a line of the appropriate color, width, and marker next to the name of the curve plotted using this line style.

Visible Toggle   Toggles on/off the visibility of the legend for the selected Plotters.

Text Size   This field specifies the desired size of the Legend text.

Origin X Y   These fields specify the location of the Legend within a Plotter's border. Values range from 0.0 to 1.0 and resulting distances are measured from the Border origin (lower left corner). These fields provide an alternative to interactively positioning the plotter Legend.

RGB Mix...   Color for the Legend text may be specified using either the RBG fields or the Color Selector dialog which is opened by clicking the Mix... button.

Border
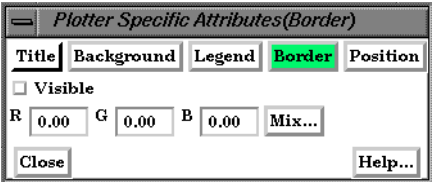
Clicking the Border Button causes the dialog to configure itself for Plotter Border editing.

Visible Toggle   Toggles on/off the visibility in the other five Modes of the Border for the selected Plotters.

RGB Mix...   Color for the plotter border may be specified using either the RBG fields or the Color Selector dialog which is opened by clicking the Mix... button. Note that the border color is not shown while the plotter is selected - while selected the border is shown in green.

(see Section 7.1, Color)

Position
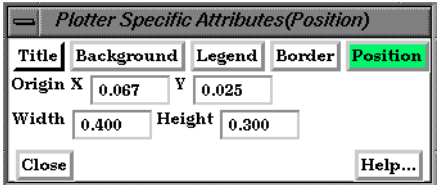
Clicking the Position Button causes the dialog to configure itself for Plotter Position editing.

Origin X Y   These fields specify the location of the selected Plotter within the Graphics Window. Values range from 0.0 to 1.0 and resulting distances are measured from the Graphics Window origin (lower left corner). These fields provide an alternative to interactively positioning the plotter which is done simply by clicking within the Plotter and dragging it to the desired position.

Width, Height   These fields specify the width and height of the Plotter. Resulting distances are measured from the Border origin (lower left corner). These fields provide an alternative to interactively resizing the plotter which is done simply by clicking on a side or corner and dragging.

Access: Plot Mode : Plotter Attributes Icon

Axis Attributes Icon   Opens the Axis Specific Attributes dialog for the specification of attributes for axes of the selected Plotters.
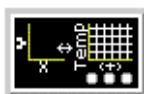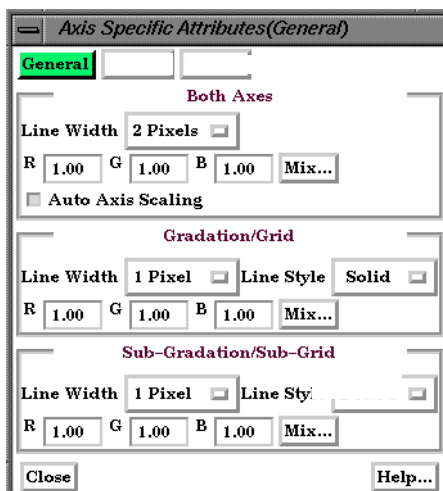

Figure 8-45
Plot Mode -   Axis Attributes Icon and Axis Specific Attributes dialog

General

Clicking the General button causes the dialog to configure itself for General Plotter Axis editing.

Both Axes
  Line Width   Opens a pop-up menu for the specification of the desired line width (1 to 4 Pixels) for Plotter axes.

  RGB Mix...   Color for the axes may be specified using either the RBG fields or the Color Selector dialog which is opened by clicking the Mix... button

  Auto Axis   When toggled on, the axis range and number of divisions will be scaled to make nice
  Scaling Toggle "round" numbers.

Gradation/Grid
  Line Width   Opens a pop-up menu for the specification of the desired width (1-4 Pixels) for Gradation Lines or Ticks.

  Line Style   Opens a pop-up menu for the specification of the style of line (Solid, Dotted, or Dashed) desired for gradations. (The lines are normally not visible and so this specification is only valid if Grad Type has been selected to Grid in the X-Axis and/or Y-Axis configuration of the Axis Specific Attributes dialog.)

  RGB Mix...   Color for the Gradation Lines or Ticks may be specified using either the RBG fields or the Color Selector dialog which is opened by clicking the Mix... button.
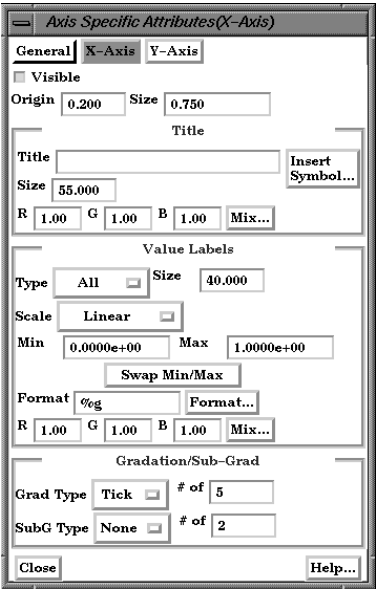
Sub-Gradation/Sub-Grid
  Line Width   Opens a pop-up menu for the specification of the desired line width (1-4 Pixels) for Sub-Gradation Lines or Ticks (those between the Gradation Lines or Ticks).

  Line Style   Opens a pop-up menu for the specification of the style of line (Solid, Dotted, or Dashed) desired for sub-gradations. (The lines are normally not visible and so this specification is only valid if SubG Type has been selected to Grid in the X-Axis and/or Y-Axis configuration of the Axis Specific Attributes dialog.)

  RGB Mix...   Color for the Sub-Gradation Lines or Ticks may be specified using either the RBG fields or the Color Selector dialog which is opened by clicking the Mix... button.

X-Axis or Y-Axis

Axis Specific Attributes(X–Axis)

General X–Axis Y–Axis

☐ Visible

Origin 0.200   Size 0.750

Title

Title [   ]   Insert Symbol...

Size 55.000

R 1.00   G 1.00   B 1.00   Mix...

Value Labels

Type All ▫   Size 40.000

Scale Linear ▫

Min 0.0000e+00   Max 1.0000e+00

Swap Min/Max

Format %g   Format...

R 1.00   G 1.00   B 1.00   Mix...

Gradation/Sub–Grad

Grad Type Tick ▫   # of 5

SubG Type None ▫   # of 2

Close   Help...

Clicking the X-Axis or Y-Axis button causes the dialog to configure itself for editing of Attributes specific to either the X or the Y Axis. If X-Axis ha s been clicked - all actions within the dialog will affect the X-Axis attributes only. Likewise for Y-Axis.

Visible Toggle	Toggles on/off the visibility of the X (or Y) Axis line.
Origin	This field specifies the location of the X (or Y) Axis origin. Values range from 0.0 to 1.0 and resulting distances are measured from the left side (or bottom) of the Plotter.
Size	This field specifies the length of the X (or Y) Axis line. Values range from 0.0 to 1.0 and resulting distances are measured from the X (or Y) Axis Origin.

Title

Title	This field allows you to edit the existing X (or Y) Axis title.
Size	This field allows you to specify the title text size.
RGB Mix...	Color for the Title text may be specified using either the RBG fields or the Color Selector dialog which is opened by clicking the Mix... button.

Value Labels

Type	Opens a pop-up menu for selection of desired number (None, All, or Beg/End) of X (or Y) Axis labels.
Size	This field allows you to specify the size of X (or Y) Axis labels.
Scale	This field allows you to specify a linear or log10 scale for the Axis.
Min	This field contains the minimum value of the X (or Y) Axis. If Auto Axis Scaling is on, it is only an approximation to the value which will be used.
Max	This field contains the maximum value of the X (or Y) Axis. If Auto Axis Scaling is on, it is only an approximation to the value which will be used.
Format	This field specifies the format used to display the X (or Y) Axis. Any C language *printf* format is valid in this field.
Format...	This button will open the Format dialog which allows you to select a pre-defined format.

Gradation/Sub-Grad
  Grad Type   Opens a pop-up menu for selection of desired marker (None, Grid, or Tick) for major
  # of   gradations. # of field specifies the number of major gradations you wish along the X (or
                Y) Axis. If Auto Axis Scaling is on, it is only an approximation to the value which will be
                used.

  SubG Type   Opens a pop-up menu for selection of desired marker (None, Grid, or Tick) for sub
  # of   gradations (between the major gradations. # of field specifies the number of sub
                gradations you wish between each major gradation along the X (or Y) Axis.

                Access: Plot Mode : Axis Attributes Icon

Curve Attributes Icon   Opens the Curve Specific Attributes dialog for the specification of attributes for an
                individual curve which has been selected in a Plotter. A curve is selected by clicking the
                mouse cursor on top of the curve. The selected curve will be drawn by a wider line than is
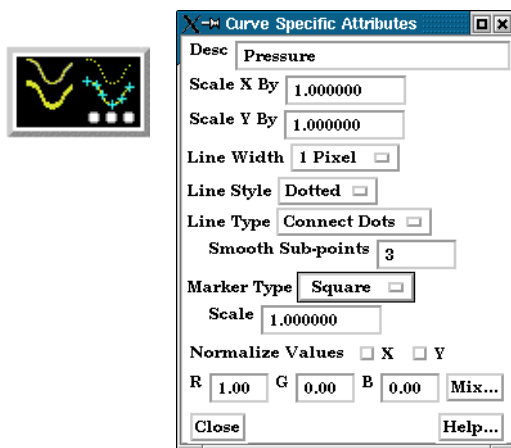   normally used to display the curve.

Figure 8-46
Plot Mode -   Curve Attributes Icon and Curve Specific Attributes dialog

Desc.   This field initially contains the Legend description of the selected Curve which was
                    assigned to it when the Curve was created. Edit and press Return to change the
                    description.

Scale X/Y By   Scales the respective X or Y values by the specified factor.

Line Width   Opens a pop-up menu for the specification of the desired line width (1-4 Pixels) for the
                    selected Curve.

Line Style   Opens a pop-up menu for the specification of the style of line (Solid, Dotted, or Dashed)
                    desired for the selected Curve.

Line Type   Opens a pop-up menu for the specification of the type of line desired for the selected
                    Curve. Options are:
                    None No lines will be drawn between points
                    Connect Dot Lines will be drawn between the points
                    Smooth A piece wise spline will connect the points

Smooth Sub-points   This field specifies the number of sub-points to use between data points in drawing the
                    curve when Smooth Line Type is selected.

Marker Type   Opens a pop-up menu for the specification of the desired type of data point marker (None,
                    Dot, Circle, Triangle, Square) on the curve.

Scale   This field specifies the size of the data point markers for the selected curve.

RGB Mix...   Color for the selected Curve may be specified using either the RBG fields or the Color
                          Selector dialog which is opened by clicking the Mix... button

                              Access: Plot Mode : Curve Attributes Icon

Select All...   Brings up the Plot Selection Option Dialog which allows selection of all curves or all
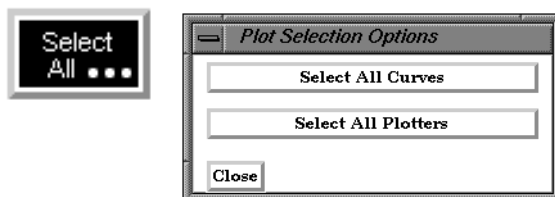   plotters.

Figure 8-47
Plot Mode - Select All... Icon and Plot Selection Options Dialog

Delete Icon   Deletes the selected Plotters.

Figure 8-48
Plot Mode - Delete Icon

                              Access: Plot Mode : Delete Icon

8.4 VPort Mode

VPort Mode is used to create, adjust the attributes of, and delete viewports.

	Viewport Layouts Icon
	New Viewport Icon
	Viewport Visibility Icon
	Viewport Forward Icon
	Viewport Back Icon
	Color Icon
	Viewport Border Attributes Icon
	Viewport Location Attributes Icon
	Viewport Special Attributes Icon
	Viewport Part Bounds Attributes Icon
	Select All Icon
	Delete Icon
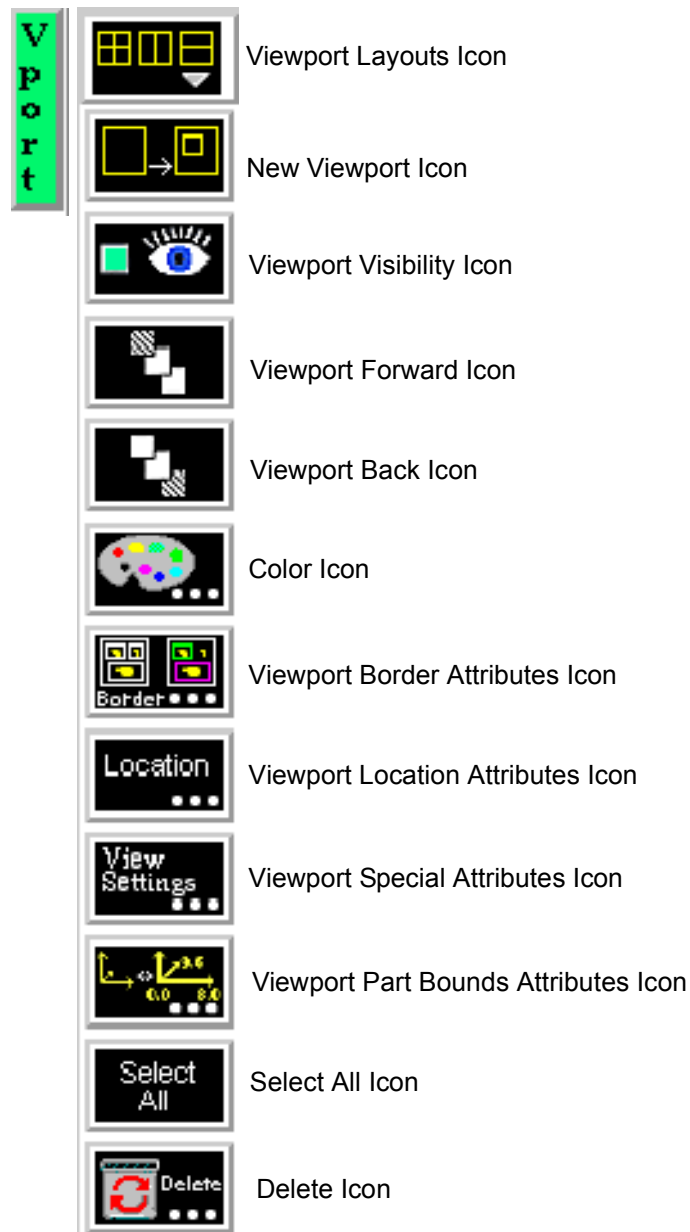
Figure 8-49
Mode Selection Area - VPort Selected

The default EnSight configuration shows one view of your model in the "main" Graphics Window. This "initial viewport", which covers the Graphics Window. cannot be removed and is always used to clear (erase) the Graphics Window prior to a redraw. Using the VPort Mode, you can create up to fifteen additional viewports that will overlay the Graphics Window. These viewports can be interactively resized and relocated within the Graphics Window using the mouse and the visibility of each Part can be controlled on a per viewport basis. Transformations, and Z-clip location settings can also be made independently in each viewport.

When in VPort Mode, you are always modifying the viewports selected in the Graphics Window. Selected viewports are outlined in the "selection color", while unselected objects are outlined in a white color. To select a viewport, click the mouse over it. To select multiple viewports, hold the Control key down while clicking on them.

Multiple viewports are helpful in showing the same object from multiple views, showing different axes in each viewport, showing the same parts with different attributes, etc.
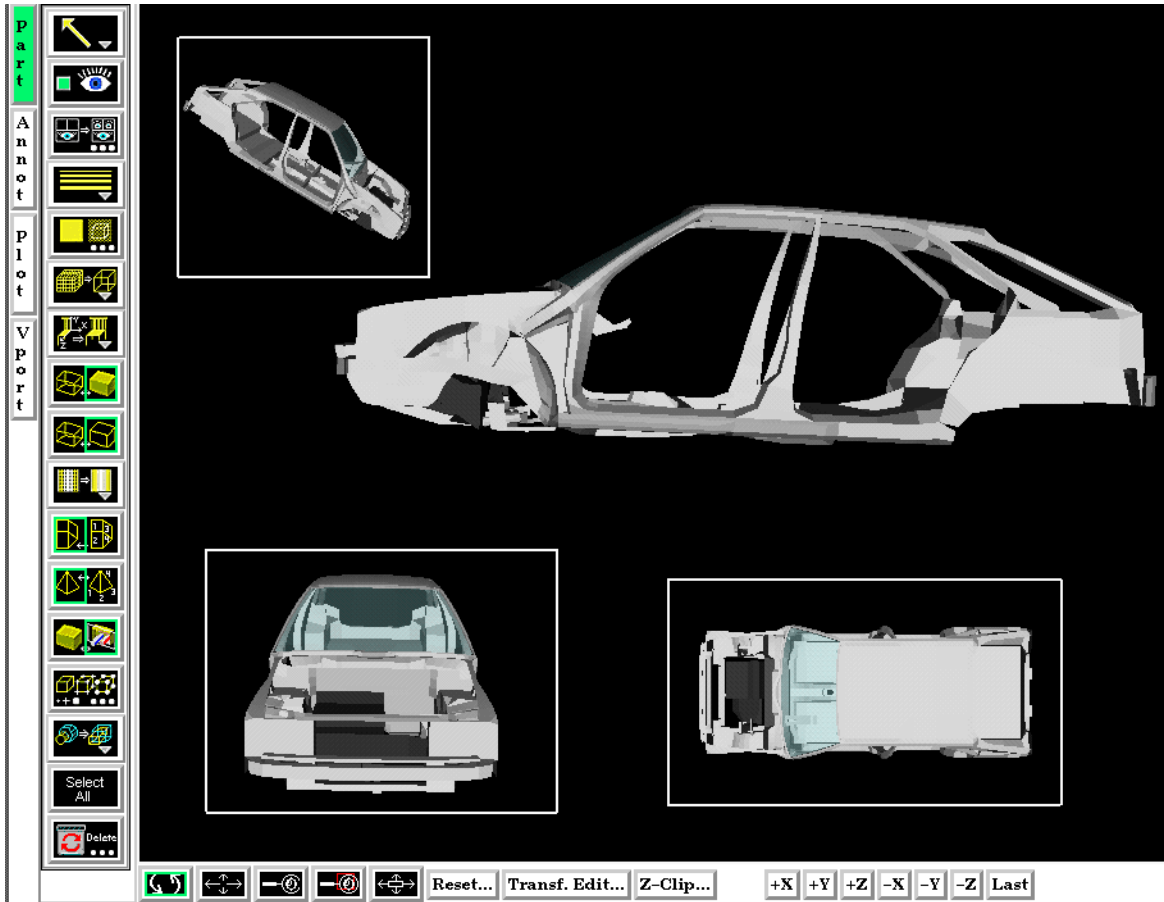
Figure 8-50
Viewport Example

Viewport Layouts Icon This icon opens a pull-down menu of icons which indicate standard viewport layouts.

Figure 8-51
Viewport Mode - Viewport Layouts Icon and Menu

Access: Vport Mode : Viewport Layouts Icon

New Viewport Icon Clicking this button creates a new Viewport within (and on top of) the "main" Graphics Window. The location and size of the viewport can be modified interactively in the Graphics Window by a) clicking and dragging within the viewport to move it of b) clicking and dragging the edge or corner to resize it. More precise modifications may be performed using the Location ... Icon.

Figure 8-52
VPort Mode - New Viewport Icon

Access: VPort Mode : New Viewport Icon

Viewport Visibility Toggle Icon Determines the visibility of the selected viewport(s). The border of a viewport which, in the VPort Mode, has its visibility toggled off will still be visible in the VPort Mode only - and then as a dotted rather than a solid line.

Figure 8-53
VPort Mode - Viewport Visibility Toggle Icon

Access: VPort Mode : Viewport Visibility Toggle Icon

Viewport Forward Icon Clicking this button moves the selected viewport(s) "forward" in the Graphics Window to occlude any viewports which it (they) may overlap. Viewport 0 cannot be "popped".

Figure 8-54
VPort Mode -Viewport Forward Icon

Access: VPort Mode : Viewport Forward Icon

Viewport Back Icon Clicking this button moves the selected viewport(s) "back" in the Graphics Window to be occluded by any viewports which may overlap it (them). Viewport 0 cannot be "pushed".

Figure 8-55
VPort Mode - Viewport Back Icon

Access: VPort Mode : Viewport Back Icon

Color Icon Opens the Viewport Background Color Attributes dialog for the specification of the color you wish to assign to the background of the selected viewport(s).
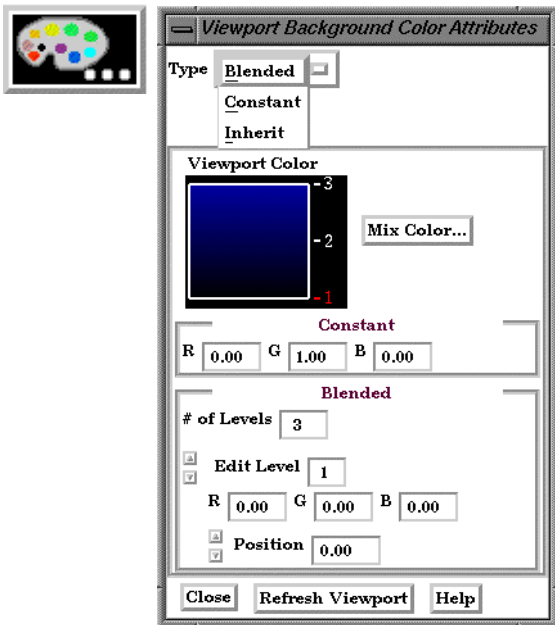

Figure 8-56
VPort Mode - Color Icon

Type Opens a pull-down menu for the specification of the type of background you wish to assign to a viewport.

Blended Allows you to specify a background comprised of 2 to 5 blended colors.

# of Levels This field specifies the number of levels (from 2 to 5) at which a color will be specified. The default is 2.

Edit Level This field specifies which of the levels you wish to edit. You may select the desired level using the stepper buttons, by entering a value in the field, or interactively by clicking on its number on the right side of the Viewport Color window.

Position This field specifies the vertical position of the edit level as a fraction (from 0 to 1) of the vertical height of the Viewport Color window, where 0.0 is at the bottom and 1.0 is at the top. You may adjust a level to the desired position using the stepper buttons, by entering a value in the field, or interactively by selecting and dragging a level's number on the right side of the Viewport Color window. The position of any level can not be below the position of the next lower level.

Constant	Allows you to specify a constant color using the RGB fields or the Color Selector dialog which is accessed by clicking the Mix Color... button.
Inherit	Causes the viewport to display the same background color attributes as the main Graphics Window. Only applicable for created viewports, not the main Graphics Window.
Mix Color...	Opens the Color Selector dialog. (see Section 7.1, Color)
Refresh Viewport	Will redraw the selected viewport(s) with the defined viewport background settings.

Access: VPort Mode : Color Icon

Viewport Border Attributes Icon   Opens the Viewport Border Attributes dialog for the specification of a constant color for the border of the selected viewports. Be aware that the color assigned will only be visible in the other five Modes, not in VPort mode.
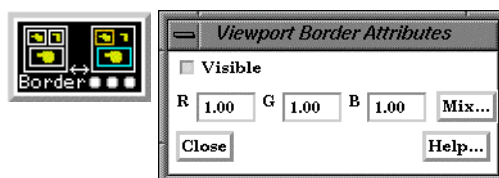
Figure 8-57
VPort Mode - Viewport Border Attributes Icon and Viewport Border Attributes dialog

Visible Toggle	Toggles on/off visibility of a viewport's border in the other five Modes. The border of each viewport will always be visible in VPort Mode.
RGB	These fields specify the RGB values for the color you wish to assign.
Mix...	Opens the Color Selector dialog. See Section 7.1 Color

Access: VPort Mode : Viewport Border Attributes Icon

Viewport Location Attributes Icon   Opens the Viewport Location Attributes dialog for the specification of the desired location in the main Graphics Window for the selected viewports. This dialog provides a more precise alternative to moving and resizing the viewports interactively.
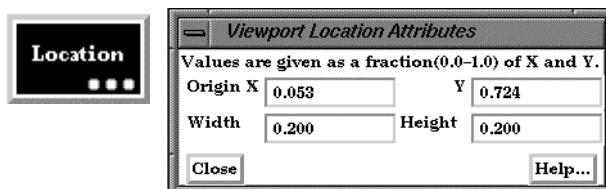

Figure 8-58
VPort Mode - Viewport Location Attributes Icon and Viewport Location Attributes dialog

Origin X Y	These fields specify the location for the X and Y coordinates of the selected viewport's origin (lower left corner) in the main Graphics Window. Values range from 0.0 to 1.0.
Width, Height	These fields specify the width and height of a selected viewport in X and Y coordinates from the viewport's origin. Values range from 0.0 to 1.0.

Access: VPort Mode : Viewport Location Attributes Icon

Viewport Special Attributes Icon

Opens the Viewport Special Attributes dialog for the specification of whether the global settings for Perspective versus Orthographic display, hidden surface display, and hidden line display will apply in the selected viewport(s). In addition, a viewport can be designated as 2D, in which case only planar 2D parts can be displayed in the viewport

Note, Once you designate a viewport as a 2D viewport, all 3D parts are no longer visible in that viewport. To see the 3D parts in that viewport again, you will need to make the viewport 3D, select the 3D parts in the parts list, and make them visible again using the visibility per viewport icon..
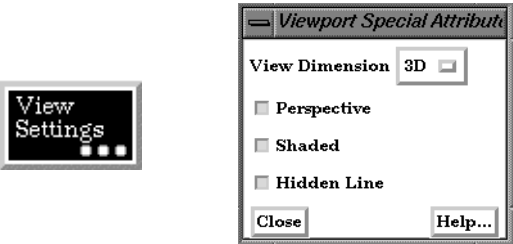
Figure 8-59
VPort Mode - Viewport Special Attributes Icon and Viewport Special Attributes dialog

Access: VPort Mode : Viewport Special Attributes Icon

Part Bounds Attributes

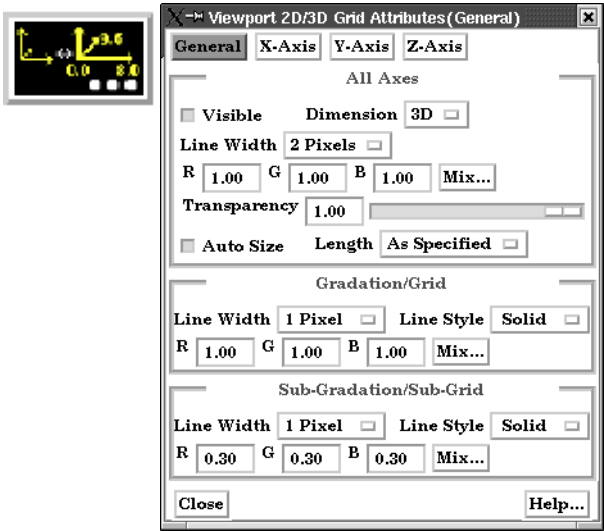Opens the Viewport Bounds Attributes dialog for the specification of part bounding box gradation and labeling.

Figure 8-60
VPort Mode - Viewport Part Bounds Icon and
Viewport 2D/3D Grid Attributes (General) dialog

General   Change the dialog to reflect overall extent grid attributes.
X-Axis   Change the dialog to reflect X-Axis extent attributes (see below).
Y-Axis   Change the dialog to reflect Y-Axis extent attributes (see below).
Z-Axis   Change the dialog to reflect Z-Axis extent attributes (see below).

All Axes Section   Contains parameters that affect attributes of all axes of the bounding extent.

Visible Toggle   Toggles on/off visibility of the viewport 2D/3D extent axes.

Dimension   Opens a menu for the specification of the desired dimension (2D or 3D) of the bounding extent axis. Default is 3D. 2D is only available for 2D viewports and 3D viewports in orthographic mode.

Line Width   Opens a menu for the specification of the desired line width (1 - 4 pixels) of the bounding

extent axis. Default is 2.

RGB	These fields specify the RGB values for the color you wish to assign.
Mix Color...	Opens the Color Selector dialog. (see Chapter 7.1, Color)
Transparency	Specifies the degree of opaqueness for the axes of the bounding extent. This value may be adjusted by typing in a value from 0.0 to 1.0 in the field or by using the slider bar whose current value is reflected in the field. A value of 0. or 1. will render the axes completely transparent or completely opaque, respectively.
Auto Size Toggle	Toggles on/off the scaling of the axis range to nice "round" numbers.
Length	Opens a menu for the specification of the desired type of length gradation on the axes of the bounding extent.

	As Specified	Divides the gradations evenly along the length of the axis. (default)
	Rounded	Tries to round to the units of the common order of magnitude.

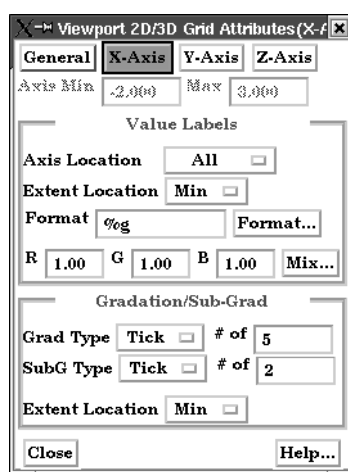|	
Gradation/Grid Section	Controls the specification of the gradation/grid of the axes of the bounding extent.
Line Width	Opens a menu for the specification of the desired line width (1 - 4 pixels) for the gradation and grid of the bounding extent axis. Default is 1.
Line Style	Opens a menu for the specification of the style of line (Solid, Dotted, or Dashed) desired for the gradation and grid of the bounding extent axis. Default is Solid.
RGB	These fields specify the RGB values for the color you wish to assign.
Mix Color...	Opens the Color Selector dialog. (see Chapter 7.1, Color)
Sub-Gradation/ Sub-Grid Section	Controls the specification of the subgradation/subgrid of the axes of the bounding extent.
Line Width	Opens a menu for the specification of the desired line width (1 - 4 pixels) for the subgradation and subgrid of the bounding extent axis. Default is 1.
Line Style	Opens a menu for the specification of the style of line (Solid, Dotted, or Dashed) desired for the subgradation and subgrid of the bounding extent axis. Default is Solid.
RGB	These fields specify the RGB values for the color you wish to assign.
Mix Color...	Opens the Color Selector dialog. (see Chapter 7.1, Color)

Figure 8-61
Viewports 2D/3D Grid Attributes (X-Axis or Y-Axis or Z-Axis dialog)

Axis	These fields reflect the Min and Max values of the selected axis.

Value Labels Section Controls attributes of the selected axis.

Axis Location	Opens a menu for the specification of the desired location (None, All (default), or Beg/End) to place the labels of the selected axis.
Extent Location	Opens a menu for the specification of the desired extent (Min (default), Max, or Both) on which to display the labels of the selected axis.
Format	This field specifies the format used to display the labels of the selected axis. Any C language "printf" format is valid in this field.
Format...	Opens the Viewport Axis Text Format dialog which allows you to select a pre-defined format.
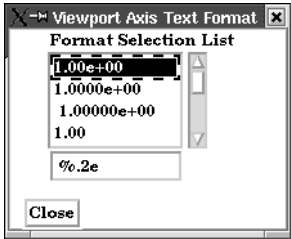
Figure 8-62
Viewport Axis Text Format dialog

Format Selection List	List of pre-defined formats. You can also enter any legal C language format string for floating point numbers.
Format Selection Field	The format specification.
RGB	These fields specify the RGB values for the color you wish to assign.
Mix Color...	Opens the Color Selector dialog. (see Chapter 7.1, Color)

Gradation/Sub-Grad Section

Grad Type	Opens a menu for the selection of desired marker (None, Grid, or Tick (default)) for major gradations of the selected axis.
# of	Specifies the number of major gradations you wish along the selected axis. If Auto Size is on, it is only an approximation to the value which will be used.
SubG Type	Opens a menu for the selection of desired marker (None, Grid, or Tick (default)) for sub-gradations (between the major gradations) along the selected axis.
# of	Specifies the number of sub-gradations you wish between each major gradation along the selected extent axis.
Extent Location	Opens a menu for the specification of the desired extent (Min (default), Max, or Both) on which to display the gradation/sub-gradations of the selected axis.
	Access: VPort Mode : Viewport Part Bounds Attributes Icon
Select All	Selects all of the currently defined viewports.

Figure 8-63
VPort Mode - Select All Icon

Delete Icon   Deletes individual, selected viewports. (You cannot delete viewport 0).

Figure 8-64
VPort Mode - Delete Icon

Access: VPort Mode : Delete Icon

8.5 Frame Mode

As EnSight reads in model Parts, they are all initially assigned to the same "Frame" of reference: Frame 0. Frame 0 corresponds to the model coordinate system (defined when the model was created). Using the Frame Mode, you can create additional frames, reassign Parts to different Frames, and specify various attributes of the Frames.

Transformations you make in View or Parts Mode (rotations, translations, etc.) are performed globally; all Frames, Parts, and Tools are transformed with respect to the Global Axis origin and orientation. Frame Mode, on the other hand, allows you to perform transformations only on selected Parts. This is useful if you wish, for example, to create an animation with Parts moving in different directions (such as a door or hood opening to reveal Parts within) or to move Part copies away from each other in order to color the Parts by different variables (in fact, if you make a copy of a Part, a new Frame is automatically created and the Part copy is assigned to it).

In Frame Mode, transformations are always about the selected Frame's definition, that is, its origin position (with respect to Frame 0) and the orientation of its axes (with respect to Frame 0). Since this is the case, the Frame's orientation must be adjusted (if necessary) before any transformations are applied. If transformations are applied first, and the Frame's definition adjusted at a later time, the transformations will likely cause unexpected results (since the transformations originally performed were about a different axis definition than that about which transformations performed after the Frames definition changed occur). The necessary order is 1) define frame location and orientation, 2) assign part to frame, 3) perform transformations relative to the frame.

A Part can be assigned to only one Frame at a time. The Part will always be transformed by the Frame's transformation. A Part is not affected by a Frame's definition (other than transformations will be in reference to the definition). A Part's mirror symmetry operation (which can be thought of as a scaling transformation) is always about the Frame to which the Part is assigned.

The Tools (Cursor, Line, Plane, etc.) are always shown in reference to the selected Frame and are thus also transformed by the selected Frame's transformations.

There are two transformation alternatives in Frame Mode: Frame Transform (the default) and Frame Definition. As pointed out earlier, a frame should first be defined (if necessary) before it is transformed.

In Frame Mode the axis triads for all Frames will be visible in the Graphics Window. Invisible Frames will be shown with a dotted frame axis. Selected Frames are shown in green. A Frame may be selected by clicking on its axis triad or by selecting its description from the Frame List in the Transformation Editor dialog (which is opened by clicking the Transf Edit... button in the Transformation Control Area).

By default, Frame mode is not available unless it has been enabled under Edit > Preferences... General User Interface - Frame Mode Allowed.

For further discussion concerning the transformation of Frames:

(see Section 9.3, Frame Transform and Section 9.2, Frame Definition)
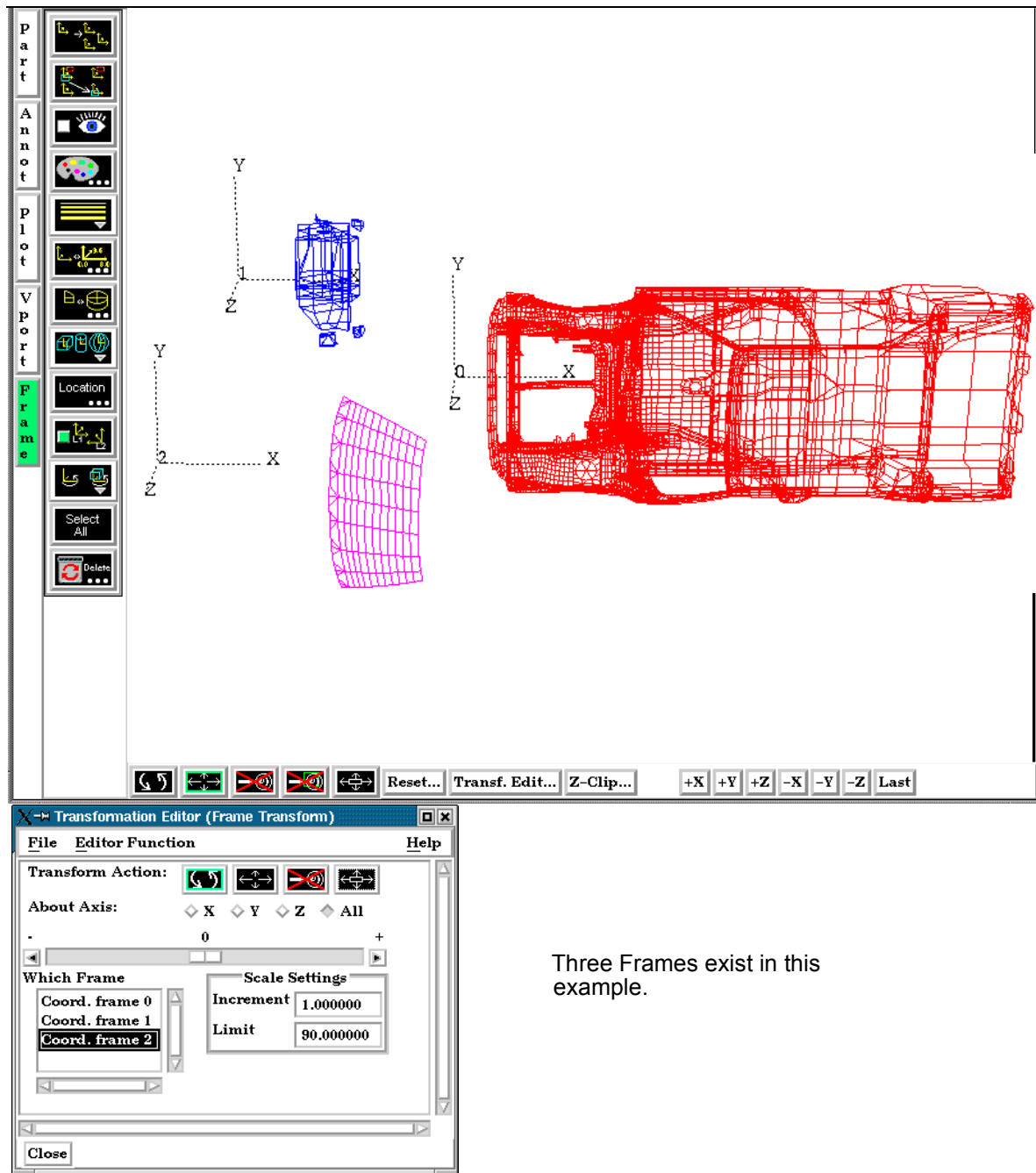
Three Frames exist in this example.

Figure 8-65
Frame Mode - Frame Example

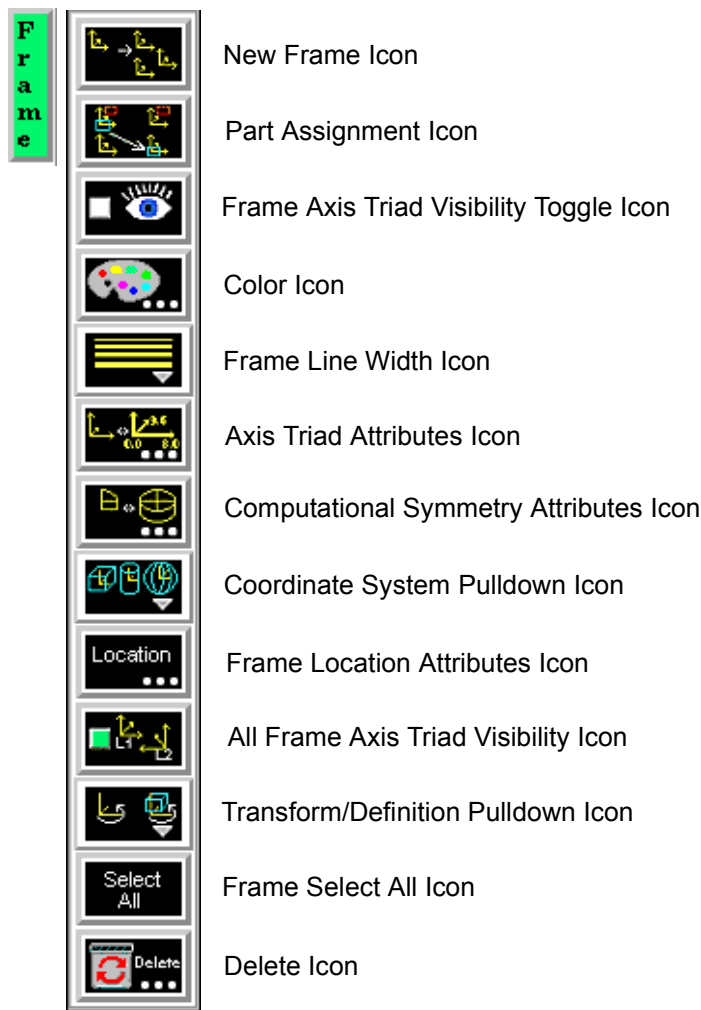When Frame Mode is selected, the Mode Icon Bar appears as follows.:

 New Frame Icon

Part Assignment Icon

Frame Axis Triad Visibility Toggle Icon

Color Icon

Frame Line Width Icon

Axis Triad Attributes Icon

Computational Symmetry Attributes Icon

Coordinate System Pulldown Icon

Frame Location Attributes Icon

All Frame Axis Triad Visibility Icon

Transform/Definition Pulldown Icon

Frame Select All Icon

Delete Icon

Figure 8-66
Mode Selection Area - Frame Selected

New Frame Icon Creates a new Frame to which you can assign Parts. Be aware that each time you make a copy of a Part EnSight creates a new Frame and assigns the copy to the new Frame. If Parts are selected in the Main Parts List, the new Frame's origin will be positioned at the center of the selected Parts.
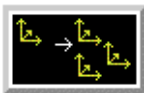
Figure 8-67
Frame Mode - Create New Frame Icon

Access: Frame Mode : Create New Frame Icon

Part Assignment Icon   Clicking this icon reassigns Part(s) selected in the Main Parts List to the currently selected Frame. (An alternative method for reassigning Parts is to edit the Ref. Frame field in the General Attributes section of the Feature Detail Editor.)

Figure 8-68
Frame Mode - Part Assignment Icon

Access: Frame Mode : Part Assignment Icon

Frame Axis Triad Visibility Toggle Icon   Determines the visibility of the axis triad(s) of selected Frame(s). Invisible Frames are drawn in dotted lines while in Frame Mode. Default is Off.

Figure 8-69
Frame Mode - Frame Axis Triad Visibility Toggle Icon

Access: Frame Mode : Frame Axis Triad Visibility Toggle Icon

Color Icon   Opens the Color Selector dialog for the specification of the color you wish to assign to a selected Frame's axis triad A selected Frame will always be shown in the selection color while in Frame Mode.

Figure 8-70
Frame Mode - Color Icon

Access: Frame Mode : Color Icon

Frame Line Width Pulldown Icon   Opens a pulldown menu for the specification of the width for Frame axis triad lines for the selected Frame(s).
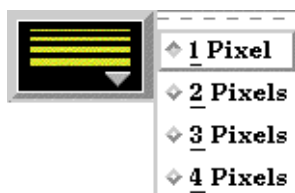

Figure 8-71
Frame Mode - Frame Line Width Pulldown Icon

Access: Frame Mode : Frame Line Width Icon

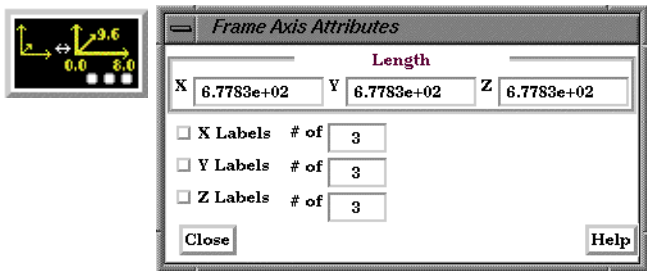|	
Axis Triad Attributes Icon	Opens the Frame Axis Attributes dialog for the specification of axis triad line length and labels for the selected Frame(s).

Figure 8-72
Frame Mode - Axis Triad Attributes Icon

X Y Z	These fields allow you to specify the desired length, in model coordinates, of each of the three axes of the selected Frame's axis triad.
X Y Z Labels Toggles	Toggles on/off the display of Labels on the respective line of a selected Frame's axis triad. Labels show distance along each axis.
X Y Z # of	These fields specify the number of Labels which will appear on the respective axis.

Access: Frame Mode : Axis Triad Attributes Icon

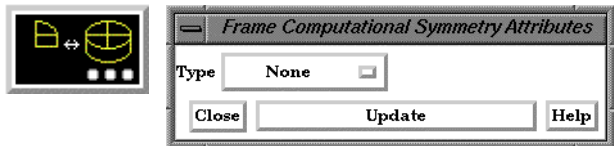|	
Computational Symmetry Attributes Icon	Opens the Frame Computational Symmetry Attributes dialog for the specification of the type of periodic conditions which will be applied to all assigned **Model** Parts of the selected Frame. ***(Note, computational symmetry does NOT work on created parts.)***

Figure 8-73
Frame Mode - Computational Symmetry Attributes Icon

(see How To Set Symmetry)

|	
Type	Opens a pop-up menu for the selection of whether you wish the selected Frame to have no periodicity (None as shown above) or to be mirror, rotational, or translational periodic.

Mirror	
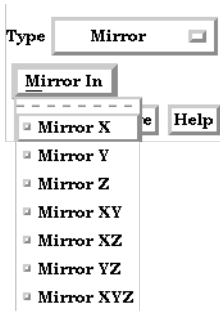
|	
Mirror In	Specification of the type of mirror periodicity.

Mirror X	face-sharing quadrant on other side of the Y-Z plane
Mirror Y	face-sharing quadrant on other side of the X-Z plane
Mirror Z	face-sharing quadrant on other side of the X-Y plane
Mirror XY	diagonally opposite quadrant on same side of the X-Y plane
Mirror XZ	diagonally opposite quadrant on same side of the X-Z plane
Mirror YZ	diagonally opposite quadrant on same side of the Y-Z plane
Mirror XYZ	quadrant diagonally opposite through origin

Rotational
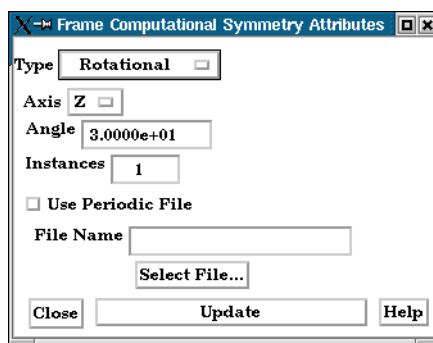
Axis	The Frame axis about which to rotate.
Angle	This field specifies the rotational angle (in degrees) about the selected Frame's z-axis for rotational periodicity.
Instances	This field specifies the number of periodic instances for rotational periodicity.
Use Periodic	If toggled On, the periodic match file specified in File Name is used for rotational symmetry.
File Name	This field specifies the name of the periodic match file you wish to use.
Select File...	Opens the File Selection dialog for the selection of a periodic match file.
	(see Section 11.9, Periodic Matchfile Format)
Update	Changes made in the dialog will not be applied until this button is clicked.

Translational
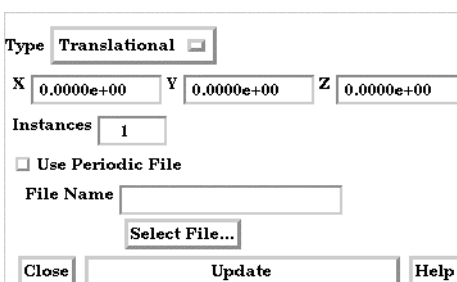
X Y Z	These fields specify the translational offset in reference to the selected Frame's orientation.
Instances	This field specifies the number of periodic instances for translational periodicity.
Use Periodic	If toggled On, the periodic match file specified in File Name is used for translational symmetry.
File Name	This field specifies the name of the periodic match file you wish to use.
Select File...	Opens the File Selection dialog for the selection of a periodic match file.
	(see Section 11.9, Periodic Matchfile Format)
Update	Changes made in the dialog will not be applied until this button is clicked.

Access: Frame Mode : Computational Symmetry Attributes Icon

Coordinate System Pull-down Icon

Opens a pulldown menu for the selection of the type of coordinate system (rectangular, cylindrical, spherical) you wish to use for a selected Frame. All three are defined in reference to Frame 0, which is rectangular. Note that each frame's orientation vectors (which describe its orientation to Frame 0) are rectangular (as is their on-screen representation) no matter what the frame's coordinate system type. However, functions that access the frame will behave different depending on the frame's coordinate system type.
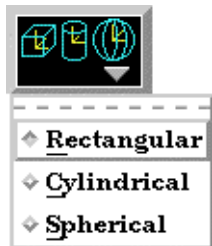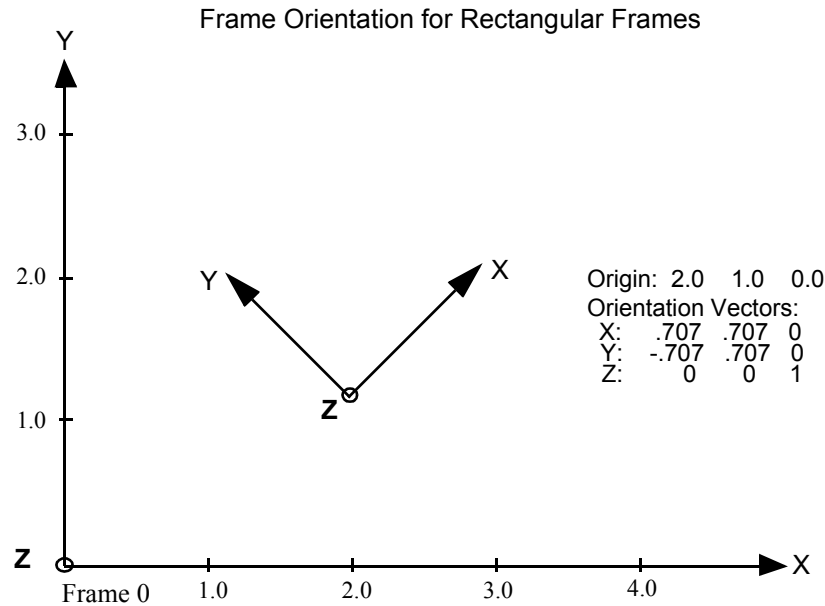

Figure 8-74
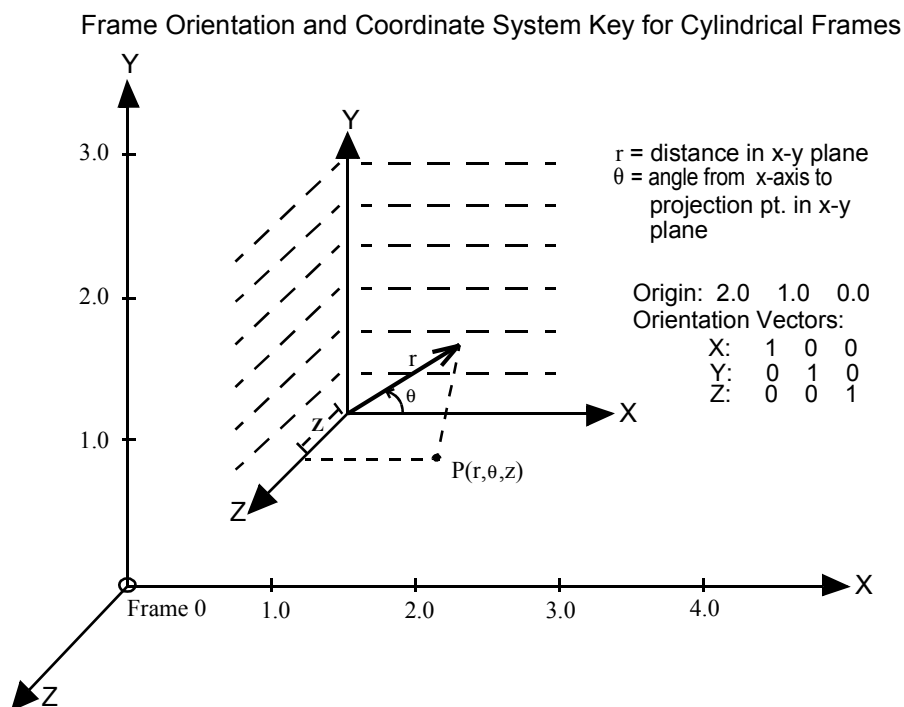Frame Mode - Coordinate System Pulldown Icon

Rectangular

The Figure below shows a rectangular frame. The origin is in reference to the Frame 0 origin, while the orientation is in reference to Frame 0's orientation.

Cylindrical

The figure below shows a cylindrical frame. The origin is in reference to the Frame 0 origin, while the orientation is in reference to Frame 0's orientation. Any function which accesses a cylindrical frame will do so in cylindrical coordinates:

r The distance from the origin to projection point in the X–Y plane.
Θ The angle from the X-axis to the projection point in the X–Y plane.
Z The Z-coordinate

Frame Orientation and Coordinate System Key for Cylindrical Frames

r = distance in x-y plane
θ = angle from x-axis to
     projection pt. in x-y
     plane

Origin: 2.0   1.0   0.0
Orientation Vectors:
          X: 1   0   0
   Y: 0   1   0
          Z: 0   0   1

Spherical   The figure below shows a spherical frame. The origin is in reference to the Frame 0 origin, while the orientation is in reference to Frame 0's orientation. Any function which accesses a spherical frame will do so in spherical coordinates:

ρ The distance from the origin to the point in question.

Φ The angle measured from the Z-axis towards the projection point in the X–Z plane.

Θ The angle from the X-axis to the projection point in the X–Y plane.

Frame Orientation and Coordinate System Key for Spherical Frames
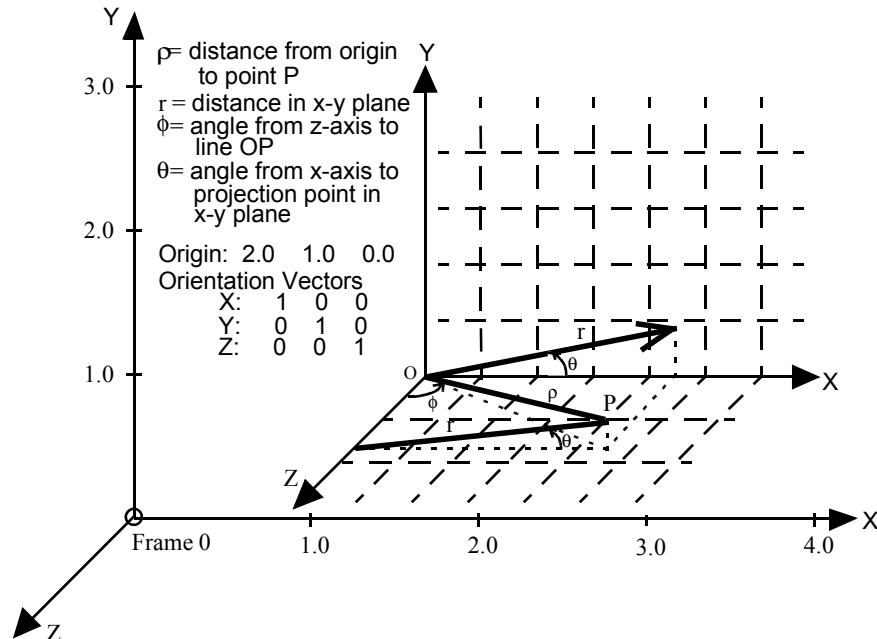
Access: Frame Mode :   Coordinate System Pull-down Icon

Frame Location   Opens the Transformations Editor dialog to permit precise definition of the selected Frame(s).

Figure 8-75
Frame Mode - Frame Location Attributes Icon

(see Section 9.3, Frame Transform)

Access: Frame Mode : Frame Location Attributes Icon

All Frame Axis Triad Visibility Toggle Icon   Determines the visibility of the axis triads of all Frame(s). Default is On.
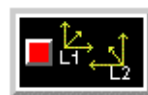

Figure 8-76
Frame Mode - All Frame Axis Triad Visibility Toggle Icon

Access: Frame Mode : All Frame Axis Triad Visibility Toggle Icon

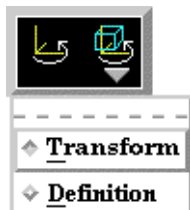*Transform/Definition Pulldown Icon*   Opens a pop-up menu for selection of desired method of Frame transformation.

Figure 8-77
Frame Mode - Transform/Definition Pulldown Icon

Transform - Transformations will cause the Parts assigned to the selected Frame(s) to be transformed as well as the selected Frame's axis triad. Translations will move the Frames' axis triad(s) and the assigned Parts. Rotations of Parts will take place about the selected Frame(s) axis origin.

Definition - User interaction in the Graphics Window or Transformation Editor will modify the selected Frame(s) origin location and/or axis orientation.

Access: Frame Mode : Transform/Definition Pull-down Icon

(see Section 9.3, Frame Transform and Section 9.2, Frame Definition)

Select All   Selects all frames.

Figure 8-78
Frame Mode - Select All Icon

Delete Icon   Deletes the selected Frame(s). (Will be prohibited if currently used by a part).

Figure 8-79
Frame Mode - Delete Icon

Access: Frame Mode : Delete Icon

8.6   View Mode

View Mode is used to adjust the appearance of Parts in the Graphics Window, the visibility and appearance of Labels, to adjust Auxiliary Clipping status, and to toggle visibility of the Global Axis triad. *By default, this mode is not available unless it has been enabled under Edit > Preferences... General User Interface - View Mode Allowed, as all of the attributes under this mode are available either on the Desktop or from the Main Menu > View pulldown.*
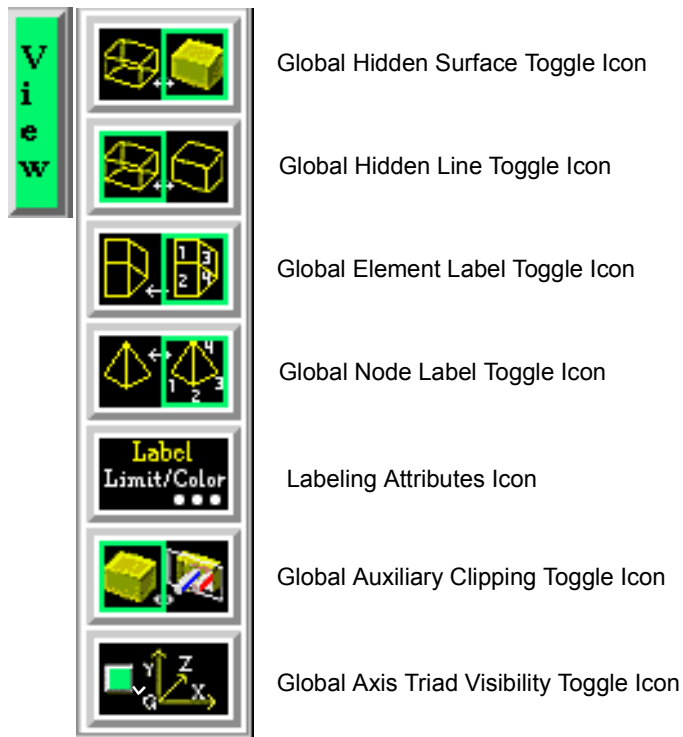

Figure 8-80
Mode Selection Area - View Selected

*Global Shaded
Toggle Icon*

Toggles on/off global Shaded (default is off) which displays all Parts in a more realistic manner by making hidden surfaces invisible while shading visible surfaces according to specified lighting parameters. Performs the same function as Main Menu > View > Shaded toggle button and the Desktop > Shaded button.

Figure 8-81
View Mode - Shaded Toggle Icon

When toggled-off, all visible Parts are shown as line drawings. Shaded may be turned off for individual Parts using the Shaded toggle in the Parts Mode Icon Bar or the Feature Detail Editor for each type of Part. It can also be turned off for a Particular viewport in the Viewport Special Attributes Icon under VPort Mode.

Shaded require more time to redraw than a line-mode display (the default), so you may wish to first set up the Graphics Window as you want it, then turn on Shaded to see the final result. It is possible to improve graphics performance when Shaded is on by also toggling on Static Lighting (Main Menu > View > Static Lighting). To shade surfaces, a Part's representation on the Client must include surfaces - (2D elements). Any 1D elements of Parts displayed with Shaded on will continue to be drawn as lines. Lighting parameters for brightness and reflectivity are specified independently in the Feature Detail Editor for each type of Part.

Access: View Mode Icon Bar: Shaded Toggle Icon
or: EnSight dialog > View > Shaded
or: Desktop > Shaded

(see Section 6.4, View Menu Functions and How To Set Drawing Style)

Troubleshooting Hidden Surfaces

Problem	Probable Causes	Solutions
Graphics Window shows line drawing after toggling on Shaded.	Shaded is toggled off for some or all individual Parts.	Toggle Shaded on for individual Parts with the Shaded Icon in Part Mode or in the Feature Detail Editor dialog.
	There are no surfaces to shade—all Parts have only lines.	If Parts are currently in Feature Angle representation, change the representation. If model only has lines, you can not display shaded images.
	Element Visibility has been toggled off for some or all Parts.	Toggle Element Visibility on for individual Parts in the Feature Detail Editor dialog.

Global Hidden Line Toggle Icon

Toggles on/off global Hidden Line (default is off) which simplifies a line-drawing display by making hidden lines—lines behind surfaces—invisible while continuing to display other lines. Performs the same function as Main Menu > View > Hidden Line Toggle and the Desktop > Hidden Line button.

Figure 8-82
View Mode - Global Hidden Line Toggle Icon

Hidden Line can be combined with Shaded to display both shaded surfaces and the edges of the visible surface elements. Hidden Line applies to all Parts displayed in the Graphics Window but it can be toggled-on/off for individual Parts using the Feature Detail Editor or the Part Mode: Hidden Line Toggle button.

To have lines hidden behind surfaces, you must have surfaces (2D elements). If the representation of the in-front Parts consists of 1D elements, the display is the same whether or not you have Hidden Lines mode toggled-on.

During interactive transformations, the display reverts to displaying all lines. When you release the mouse button, the Main View display automatically resumes Hidden Line mode (assuming it is toggled on at that time).

The Hidden line option will not be active during playback of flipbook objects animations.

Hidden Line Overlay

If you toggle Hidden Line on while Shaded is already on, the lines overlay the surfaces. EnSight will prompt you to specify a color for the displayed lines (you do not want to use the same color as the surfaces since they then will be indistinguishable from the surfaces). The default is the Part-color of each Part, which may be appropriate if the surfaces are colored by a color palette instead of their Part-color.
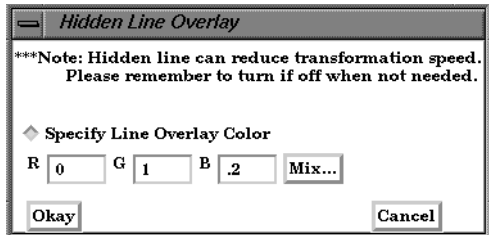

Figure 6-83
Hidden Line Overlay dialog

Specify Line Overlay Toggle

Toggle-on if you want to specify an overlay color. If off, the overlay line color will be the same as the Part color.

R, G, B

The red, green, and blue components of the hidden line overlay. These fields will not be accessible unless the Specify Overlay option is on.

Mix...

Click to interactively specify the constant color used for the hidden line overlay using the Color Selector dialog. (see Section 7.1, Color and How To Change Color)

Access: View Mode Icon Bar: Global Hidden Line Toggle Icon
    or: Main Menu > View > Hidden Line
    or: Desktop > Hidden Line

(See How To Set Attributes)

Global Element Label Toggle Icon   Toggles on/off the global visibility (default is on) of element labels (if they are available in the data set) for all Parts. Performs the same function as Main Menu > View > Label Visibility > Element Labeling.

Figure 8-84
View Mode - Global Element Label Toggle Icon

Visibility of element labels for individual Parts can be controlled in the Node, Element, and Line Attributes section of the Feature Detail Editor (Model) or using the Element Label Toggle under Part Mode.

Access:' View Mode : Global Element Label Icon
or: Main Menu > View > Label Visibility > Element Labeling

Global Node Label Toggle Icon   Toggles on/off the global visibility (default is on) of node labels (if they are available in the data set) for all Parts. Performs the same function as Main Menu > View > Label Visibility > Node Labeling.

Figure 8-85
View Mode - Global Node Label Toggle Icon

Visibility of node labels for individual Parts can be controlled in the Node, Element, and Line Attributes section of the Feature Detail Editor (Model) or using the Node Label Toggle under Part Mode.

Access: View Mode : Global Node Label Icon
or: Main Menu > View > Label Visibility > Node Labeling

Label Attributes Icon   Opens the Node/Element Labeling Attributes dialog.
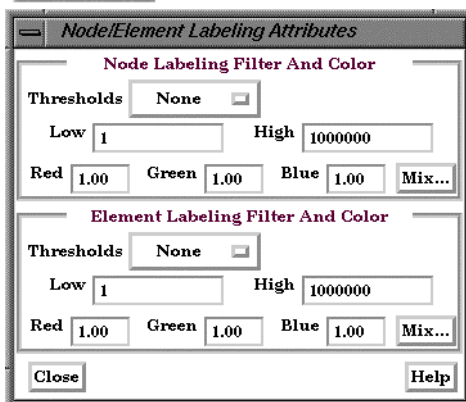

Figure 8-86
View Mode - Labeling Attributes Icon and Node/Element Labeling Attributes dialog

It is often useful to limit the visibility of node and element labels to a subset of those available in order to identify areas of interest. Coloring the labels can also make identification easier. The Node/Element Labeling Attributes dialog is used for these two purposes.

Node Labeling Filters and Color

Thresholds	Selection of pattern for filtering node labels according to the label number. Options are:
	None displays all the node labels. (No filtering done)
	Low displays only the node numbers that are above Low. (Filters low numbers out)
	High displays only the node numbers that are below High. (Filters high numbers out)
	Band displays only the node numbers that are below Low and above High. (Filters the band out)
	Low_High displays only the node numbers between Low and High. (Filters the low and high node numbers out)
Low	This field specifies the lowest node number you wish to display.
High	This field specifies the highest node number you wish to display.
R G B	These fields may be used to specify node label color by RGB values between 0 and 1.
Mix…	Opens the Color Selector dialog. (see Section 7.1, Color)

Element Labeling Filters and Color

Thresholds	Selection of pattern for filtering element labels according to the label number. Options are:
	None displays all the element labels. (No filtering done)
	Low displays only the element numbers that are above Low. (Filters low numbers out)
	High displays only the element numbers that are below High. (Filters high numbers out)
	Band displays only the element numbers that are below Low and above High. (Filters the band out)
	Low_High displays only the element numbers between Low and High. (Filters the low and high node numbers out)
Low	This field specifies the lowest element number you wish to display.
High	This field specifies the highest element number you wish to display.
R G B	These fields may be used to specify element label color by RGB values between 0 and 1.
Mix…	Opens the Color Selector dialog. (see Section 7.1, Color)

Access: View Mode : Labeling Attributes Icon
or: Main Menu > View > Label Visibility > Labeling Attributes...

Global Auxiliary Clipping Toggle Icon Toggles the global Auxiliary Clipping feature on/off (Default is off). Performs the same function as Main Menu > View > Auxiliary Clipping.

Figure 8-87
View Mode - Global Auxiliary Clipping Toggle Icon

Like a Z-Clip plane, Auxiliary Clipping cuts-away a portion of the model. Unless Auxiliary Clipping (Aux. Clip) has been toggled off for specific Parts in the Feature Detail Editor dialog General Attributes section or with the Auxiliary Clipping Toggle Icon in the Part Mode Icon Bar, Parts (or portions of Parts) located on the back (negative-Z) side of the Plane Tool are removed. Individual Parts whose Aux Clip attribute you have toggled off remain unaffected.

Auxiliary Clipping is helpful, for example, with internal flow problems since you can "peel" off the outside Parts and look inside. This capability is also often useful in animation.

Auxiliary Clipping is interactive—the view updates in real time as you move the Plane Tool around. Unlike a Z-Clip plane, Auxiliary Clipping applies only to the Parts you specify, and the plane can be located anywhere with any orientation though it is always infinite in extent. The position of the Plane Tool and the status of Auxiliary Clipping is the same for all displayed viewports.

Do not confuse Auxiliary Clipping with a 2D-Clip plane, which is a created Part whose geometry lies in a plane cutting through its parent Parts or with the Part-operation of cutting a Part.

Access: View Mode : Global Auxiliary Clipping Toggle Icon
   or: Main Menu > View > Label Visibility > Auxiliary Clipping

(see Section 6.5, Tools Menu Functions and How To Use the Plane Tool)

Troubleshooting Auxiliary Clipping

Problem	Probable Causes	Solutions
The Plane Tool does not appear to clip anything	The Aux Clip toggle is off for each individual Part.	Turn the Aux Clip toggle on for individual Parts in the Feature Detail Editor (Model) General Attributes section.
	The Plane Tool is not intersecting the model	Change the position of the Plane Tool.
The Graphics Window shows nothing other than the Plane Tool after Clipping is toggled-on.	All of the Part(s) is(are) on the back side of the Plane Tool and is(are) thus clipped	Change the position of the Plane Tool.

Global Axis Triad Visibility Toggle Icon   Toggles on/off the visibility (default is off) of the Global Axis triad. Performs the same function as Main Menu > View > Axis Visibility > Axis - Global.
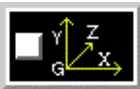

Figure 8-88
View Mode - Global Axis Triad Visibility Toggle Icon

The Global Axis triad shows the point and axes around which Global rotations occur.

Access: View Mode : Global Axis Triad Visibility Toggle Icon
   or: Main Menu > View > Axis Triad Visibility > Global